The Iron A

A Review of the Hardware, Iron and Metal Trades.

Published every Thursday Morning by DAVID WILLIAMS, No. 83 Reads Street, New York. Entered at the Post Office, New York, as Second-Class Matter.

Vol XXXI: No. 13.

New York, Thursday, March 29, 1883.

\$4.50 a Year, Including Postage. Single Copies, Ten Cents.

Large Drawing Press.

Our illustration shows an improved drawing and stamping press by E. W. Bliss, 17 Adams street, Brooklyn, N. Y. This press, called the "No. 7," is a considerable modificalled the "No. 7," is a considerable modifi-cation and improvement on other presses of the same character previously built in this establishment. One of the leading features is that the parts are balanced so that no counterweights are needed. In the double guides at the left-hand end of the shaft is a counterweights are needed. In the duals guides at the left-hand end of the shaft is a yoke surrounding the cam, which carries the blank-holder up, its motion being transmitted by an equalizing bar at the top. In most of the presses built by Mr. Bliss this work is done by a single cam, which occupies the space between two rolls, and both raises and lowers the blank-holder. In the new press three cams are used. Two, which are upon the arms of the crank, carry the blank-holder down, while a third, shown in the yoke, raises it. The advantage of this is that the form of the cam can be made so that the "dwells" and motion are better adjusted. More power can be gained and the blank-holder can be raised quicker—in fact, the working surfaces of the main cams are laid out independent of all considerations the blank-holder can be raised quicken in fact, the working surfaces of the main cams are laid out independent of all considerations except that of the work and the time in which the different motions are performed. The form of the return cam is then the resultant of the other motions and is determined by the other cams. As is usual with these presses, the cams being on the crank arms, the main journal bearings come close up to them, leaving no portion of the shaft unsupported. The press is intended to take a 30-inch blank and turn out work 22 inches in diameter. The weight of the press is 18 tons, and it is suitable for manufacturing all sorts of pressed-iron and sheet-metal shelf goods. The means for making adjustments, taking up lost motion, materials, &c., need little mention, as they are similar in character to other presses by Mr. Bliss which we have described in former issues.

Letters of Credit.

A suit begun by Drexel & Co., the bankers, of this city, London and Paris, against Mr. Henry Huddy, is calculated to attract a large Henry Huddy, is calculated to attract a large share of attention among traveled Americans and Americans who propose to travel abroad. It really involves the integrity of the letter-of-credit system, is remarkable as being the first case of the kind ever brought, and as iavolving banking houses in France, England, Holland and America.

The history of the case is interesting and is briefly told. In the summer of 1881 Mr. Huddy took his wife and his sister-in-law abroad. Before leaving Philadelphia he secured a letter of credit from Drexel & Co., so

Huddy took his wife and his sister-in-law abroad. Before leaving Philadelphia he secured a letter of credit from Drexel & Co., so drawn that he was privileged to draw against it in pounds sterling through Morgan & Co., the London branch of the Philadelphia house, or in France through Drexel, Harjes & Co., the Paris branch. On August 19, 1831, Mr. Huddy and his party arrived in Frankfort, having previously established relations with Drexel, Harjes & Co. On the same day they started for Saint Maurice, and at Heidelberg they left the train for refreshments. The station was crowded, and while returning from the restaurant Mr. Huddy and his wife were persistently jostled by a party of men, of whose appearance in the confusion they could get no clear idea. Mr. Huddy carried his letter of credit and 300 francs in money in a wallet in an inner breast pocket of his coat. A moment after he regained his compartment in the train he discovered that his coat had been unbuttoned, and that he had been robbed of his wallet and its contents. None of his party could speak German, but they were relieved from this dilemma by an English gentleman on the same train, who, at Mr. Huddy's dictation, telegraphed the facts of the robbery to Drexel, Harjes & Co. from Carlsruhe, which is an hour's ride from Heidelberg. On the day following a ascond dispatch was sent to the Paris bankers from Zurich, and Mr. Huddy says that in reply to this letter he was to the Paris bankers from Zurich, and Mr. Huddy says that in reply to this letter he was notified by the firm that the letter had been canceled. This set his mind at rest, as he be-lieved that the thief would not succeed in negotiating any drafts against the letter of credit. He was amazed a few weeks subse-quently, upon his return from Paris, to learn that the pickpocket had succeeded in having that the pickpocket had succeeded in having the letter of credit cashed for its full amount—\$5000—by Hoyake & Co., bankers, in Amsterdam, and correspondents of the London and Paris branches of Drexel & Co.

To obtain the money the thief had to forge the signature of Mr. Huddy, and in view of this fact the latter concluded that the Amsterdam house would have to bear the loss accrained from its own negligence in

the Amsterdam house would have to bear the latter when he restricted he have to bear the loss accuring from its own negligence in cashing the forged letter. When he returned to this country, however, he learned that Hoyake & Co. had secured themselves by transferring to their own credit \$5000 of the fund of Morgan & Co., of London. In turn the London house charged up the amount to Drexel & Co., of this city, who amount to Ported & Co., of the city, who are a short the letter. Mr. Huddy made extensive finquiries in Europe, and, so far as he can ascertain, his was the first case in which money had been obtained on a letter of credit for so on siderable an amount should have been paid in full on one day, as this one was. The

thief succeeded in getting his money on the

Timber Wealth of Wisconsin.

day following that on which he committed the robbery. The bankers allege negligence against Mr. Huddy, but that gentleman says he proposes to make this case a test as to whether a person to whom a letter of credit is issued can be held responsible for its pay-

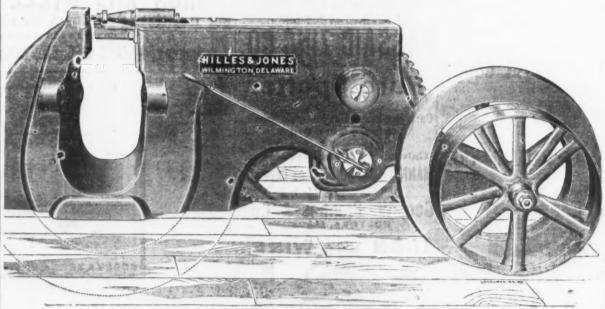
Wisconsin are irregularly distributed through the State. Four counties are estimated at 12,000,000 cords, in addition to some timber of commercial value. Valuable oak timber exists in large quantities in some counties, and hardwoods are found distributed through all the southern portion of the forest area of the State. The cut of the hardwoods for this year was 117,041,000 feet, exclusive of 86,545,000 staves and 7,448,000 set headings. The cedar swamps scattered through the pine belts of the State cover an area of some 1,065,000 acres, and are estimated to contain 62,800,000 posts, telegraph poles and railroad ties, in addition to large quantities of tamarack and spruce.

The Chinese Coal Trade.—Statistics show that the importation of anthracite coal into Shanghai is increasing, and in 1881 reached nearly 5000 tons. The local coninto Shanghai is increasing, and in 1881 reached nearly 5000 tons. The local consumption of this coal is limited, being chiefly used for house and blacksmiths' purposes, and it is generally shipped on vessels loading kerosene oil and sundry cargo as ballast. Formerly there was a greater demand for this coal, as the American navy vessels used it in preference to other kinds, but they now use in its place cheap Takasima dust coal, which is much less expensive. With regard also to the trade of North Formosa, a correspondent at Amoy states that the trade in respondent at Amoy states that the trade in

NEW DRAWING PRESS .- MADE BY E. W. BLISS, ADAMS STREET, BROOKLYN, N. Y.

ment if he should lose it, and the finder should obtain the money by forging the owner's signature.

Attorney-General Cassidy, who represents the banking house no protection in the face of a forgery. That the letter of credit, as paid,



Horizontal Flange Punch.

Messrs. Hilles & Jones, of Wilmington, Del., are making a new line of machines for flange punching which will be of value to iron shipbuilders, boiler-makers and others having shipbuilders, boiler-makers and others having holes to punch in flanges, angle iron, &c. The tool shown here is called a "Horizontal Flange Punch." The slide works horizontally, the gap being placed in a vertical position. The No. 3. machine has a gap of 42 inches in depth, and will punch %-inch iron. It will be seen from the dotted lines in the cut that the frame is carried some distance beneath the floor, bringing the bottom of the gap within a few inches of floor level. Such a machine will punch flanges of all shapes, bent angle iron, &c., and as the gearing, pulleys and balance-wheels are all below the top of the machine, the punching may be done from inside or outside without difficulty. Holes can also be punched in wide sheets, both before and after they are bent to circle. Of the deep-gap pattern three styles are Of the deep-gap pattern three styles are made, one having a 30-inch gap, which will punch %-inch iron, the second having a punch %-inch iron, the second having a 36-inch gap for %-inch iron, and the third the one we have mentioned. The arrangement of the gearing keeps the fast and loose pulleys above the level of the floor, and brings the clutch into convenient position, so that it can be marked by the lever handle near the jaw. The frame is of great strength and rigidity. Brackets on the sides of the jaw just below the gap rest upon the floor, and carry the weight of the forward end of the machine. We need say little in regard to the value of a machine of this kind, since its merit will be easily seen and appreciated by a large class of iron-workers in both light a large class of iron-workers in both light and heavy metal.

Eight-Hour Law Claims.

Governor Butler, of Massachusetts, has written the following letter relative to the enforcement of the eight-hour law:

Boston, Mass., March 5, 1883.

My Dear Sir: Mr. Barrett and myself have filed a petition, of which I inclose you a copy, in the Court of Claims, which will test the rights of all mechanics laboring for the Government under the eight-hour law. I suppose that when we get judgment, if we do in that court, the United States will appeal to the the Supreme Court, so that it may be some considerable time before we can get the questions of law decided. Meanwhile, a large nun ber of those claims will "outlaw." That is, the Statute of Limitations will run against them, so that it will be necessary to alle a petition in each case to save our rights. BOSTON, MASS., March 5, 1883. against them, so that it will be necessary to die a petition in each case to save our rights. But that probably will not be necessary until next fall. Meantime, I propose that a large number of petitions from every arsonal, navy-yard and Government workshop in the United States be prepared and forwarded to Washington and presented to the next Con-United States be prepared and forwarded to Washington and presented to the next Congress at its first session, and see if they will not order the claims paid without the trouble of going through the courts. I believe Congress will do it if called upon. That is what ought to be done, and the laboring men saved the cost and trouble of litigating all these cases. hese cases.

This performance of the Government in nullifying almost the only law that has been passed for the benefit of the workingmen passed for the benefit of the workingmen directly is not creditable to the administration of justice and law in this country. Why officers of the United States, whose duty is simply to execute the law, should set aside a plain provision of law is inexpicable, especially when that law is in favor of the mechanic, who ought to be favored by the Government, if anybody. I observe that such officers do not nullify any law in favor of large corporations, railreads, banks and others, and, more than that, whenever anybody holding a bond of the United States, which is only another class of claims under a law of Congress—for which no more valuable consideration is paid than the labor which the mechanic gives to the Governwhich the mechanic gives to the Govern-ment under a law of Congress which fixes their rate of pay—is asked to take his pay in the same currency that the mechanic re-ceives for his labor, there is instantly a howl about repudiation, and everybody who suggests such a thing is called a repudiator. I submit to you and so the judgment of any submit to you and so the judgment of any candid man, which is the repudiator—the officer who deliberately sets aside the law of Congress, nullifies it, which Jackson threatened to hang the South Carolinians for, or the man who believes there should be one currency for the rich and the poor. Please say to your fellow laborers that we will do the best we can to get for them their rights under the difficulties that surround us. This under the difficulties that surround us

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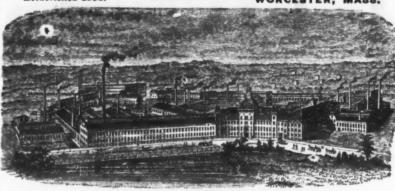
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Dr. P. Bender, a Canadian, in an article in the North American Review, calls atten-tion to the fact that Canada needs our enter-prise and our markets; that for want of them her citizens are emigrating to America, and that she cannot get on so well alone—for geographical reasons among others—as she can with our assistance. There was a time in recent years when this feeling did not exist. Our enormous debt at the close of the war was "held up, in terrorem, be-fore Canadian eyes to excite contentment with their situation and aversion to 'Yankee connection," but when the debt began to be paid off in huge installments, the achievement "proved an impressivement advertise-ment of the resources of the Republic." Meanwhile, the debt in Canada advanced rather than diminished in size. Whereas, in 1867 it was only \$93,046,051, in 1881 it was \$191,861,537. Dr Bonder does not overlook the fact that there exists in Canada a loyal section of the population who would stoutly section of the population who would stoutly oppose annexation, but along with them there are "multitudes, even of British Protestants, who set the slightest possible value on the connection with England, which they were only too glad to escape from in order to better their condition. They con sider the people of the United States a race with which they must have business and second relations, and smoonly whom many of with which they must have business and social relations, and among whom many of them may sooner or later take up their permanent abode. The Republic, in their estimation, affords them the most profitable sphere for their energies, and vast numbers of them annually enter it to push their fortunes. The fact that there is scarcely a family in the Dominion, French, German or British, but has members or relatives living. family in the Dominion, French, German or British, but has members or relatives living in the United States, operates as a mighty moral force in the interest of peace and closer communion. The feeling toward England is very diffeaent. However much she may be admired and loved by a great portion of the colonists, the masses of Canada feel that their fortunes, with those of their children's children, are involved in the fate of this northern continent. As all men are influenced by their own interests, it is easy to understand that the trading classes would like free access to larger markets, which political and commercial union would afford. They keenly feel, particularly in times of political and commercial union would afford. They keenly feel, particularly in times of depression, that their field of operations is very limited, with a population of only 4,000,000 scattered over a territory nearly 4000 miles from east to west, with little more than an attenuated line of frontier and river settlements. Most Canadians are aware that the United States offer every variety of climate, as well as of vegetable productions, to suit all constitutions, tastes and necessities. The vast development of and necessities. The vast development of their manufacturing and mining industries, together with the rapid settlement of their wild lands, holds out substantial prospects of profitable employment to all comers, of whatever race or craft. In fact, the marvelous expansion of the industry, commerce and population of the Republic during the last 20 years, despite the terrible losses, panies and demoralization resulting from the civil war, has produced a profound impression upon all Canadians."

Republicanism, we are told, is growing

every day more popular in Canada; not that the bulk of the people "concern themselves much with the merits of republicanism or monarchy in the abstract." They, however, do draw practical conclusions as to the sucdo draw practical conclusions as to the suc-cessful operation of republicanism in the United States The following is the writer's conclusion: "The difficulties be-setting the formation of a united, compact state out of a chain of widely scattered Provinces, reaching from the Atlantic to the Pacific, appear insuperable. Dumb-belllike, the greatest bulk and weight is at each end, the connecting-bar being represented by the connecting-har being represented by some 1200 miles of lacustrine shores, rocky deserts and portages, varied by swamps and lakelets—the forbidding, silent wilderness stretching from the headwaters of the Ottawa to Thunder Bay, and thence to Manishar What there are according thinker. toba. What, then, can a candid thinker conclude from the above facts, save that the present and future interests of the Provinces of Ontario, Quebec, New Brunswick, Nova Scotia and Prince Edward's Island can be best promoted by a close and friendly union with the American Republic? The North-ern and Eastern States adjoin these Provinces, and supply them their nearest and most profitable markets, and have long been connected with them by the bonds of good connected with them by the bonds of good neighborhood and mutual trade. There is everything in the natural, social and commercial circumstances of the two countries mercial circumstances of the two countries to favor such a happy consummation, which could not fail to gratify the pride, stimulate the energies and enormously augment the wealth and resources of the two young Anglo-Saxon nations of North America. Already over 1,000,000 of Canadians, French and Entitle in the Angles of Parish in tall ligant and enterprising and British, intelligent and enterprising, have founded homes in the Republic, the number yearly increasing. There is no number yearly increasing. There is no reason why the remainder should not sensibly anticipate the future and unite their and their country's fortunes with the greatest and most prosperous nation the world has ever known."

Chicago claims to have 266 establishments engaged in the manufacture of iron, of which 8 are barbed wire works, 15 wire works and wire-cloth works, 28 machinery manufactories, 6 file works, 3 cutlery works, 2 chain manufactories and 4 car-wheel works. Capital invested is \$17,400,000; workmen engaged, 18,600; value of product. \$45,255,000. The manufactories engaged in the furniture line foot up 353. Capital, \$10,595,000; workmen, 16,339; value of product, \$32,000,000. There are 116 firms engaged in the manufacture of wood and iron. Capital invested, \$8,525,000; workmen engaged, 8085; value of product, \$10,065,000. Outside of iron there are 136 firms engaged. Capital, \$3,000,000; workmen, 2600; product, \$5,670,000. In leather there are 113 firms employed. Capital, \$8,000,000; workmen, 6474; product, \$17,725,000. In chemicals the figures are 106 establishments. Capital invested, \$7,370,000; workmen, 3603; product, \$18,500,000. Chicago claims to have 266 establishments

fornia railway station during June, July, August and September, 1882. There were 40 lights in operation and the power was furnished by a 50-horse engine. The following was the result of the experiment

Average cost per month.
Average cost per night.
Average number of lights nightly
Average hours of lighting nightly
Average cost of one light nightly
Average cost per light per hour. The lights were magnificent, but the cost

Greatest Ringing Bells.

was double that at which the station might have been fairly lighted by gas.

We extract the following from a paper on bells, by John W. Nystrom, published in the Journal of the Franklin Institute:
Russia is famous for having the greatest bells in the world, but if the great Tzar Ko-

bells in the world, but if the great Tzar Kolokol of Moscow, which has never served the purpose of a bell, be excluded, then Burmah takes the honor of having the largest ringing bells. The Burmah bell founders appeat to have attained great perfection in that art, and they take great pride in their production. The quality of tone of the Burmah bells is said to be very fine. The Mengoon bell is the greatest ringing bell in the world, weighing 201.600 pounds, and its probable weighing 201,600 pounds, and its probable diameter is 203 inches. The great bell in Rangoon, called Maha Ganda, weighs 95,000

Rangoon, called Maha Ganda, weighs 95,000 pounds, with probable diameter of 155 inches, and is said to have a very fine tone.

The first great bell in Moscow was presented to St. Ivan's Church by the Tzar Boris Godunof, in the 16th century. This bell was actually hung and rung, but its weight, 288,000 pounds, was too great for its support; it fell and broke, and was recast in the year 1654. Diameter, 216 inches, and the year 1654. Diameter, 216 inches, and sound bow, 18 inches. During the fire in 1706 the bell fell and broke again. The greatest bell in the world is that at Mosc called Tzar Kolokol, or monarch bell. called 12ar Kolokot, or monarch bell. Its dimensions are 19 feet 3 inches high; diameter, 22 feet 8 inches; thickness of sound bow nearly 2 feet, and weight, 443,772 pounds. The weight has evidently been calculated, because the Bussians had no scale upon which it could be weighed. From the dimensions of the kell taken by the scale upon which it could be weighed. From the dimensions of the bell, taken by the writer, and the weight calculated, it should weigh nearly 500,000 pounds. According to the inscription on the bell, it was cast in the year 1733. In those days they had no means of transporting heavy weights, and great bells were therefore cast in the church yards, close to where the bell was to be hung, as was the case with the great Moscow bell, which was cast in a pit close to St. Ivan's Church, in which tower it was intended to be hung. The molding of the bell was prolably done in the ordinary way—namely, tle
core was built first, upon which the thickness of metal was laid with loam or clay, at d
the cope built over it. Judging from the
unevenness of the inside surface of the bell, unevenness of the insade surface of the only it is probable that the core was not swept, but dubbed up, so that the bell is not of even thickness at equal distances from the lip. The outside surface is very even, and has evidently been swept by a steady sweep. In evidently been swept by a steady sweep. In preparing and melting the metal for casting the bell it appears that no exact composition was attempted, for the nobles and other capitalists of Moscow threw a great amount of silver and other metal into the furnace, which made it an uncertain alloy, with which made it an uncertain alloy, with much greater shrinkage than the minimum, which is 31 parts of tin to 100 of copper. The molding, casting and precautions for cooling and shrinkage of a bell of this size require more practical experience than probably these bell founders were in possession of, for it is evident that the bell broke by

of, for it is evident that the bell broke by shrinkage in the pit in which it was cast.

The cooling of a bell of this size requires a time of at least one month, if not six weeks, from the day it is cast, but it appears that the bell founders attempted to dig up the bell a few days or a week after it was cast, and it is also said that water was poured on the mold or easting; at all events, the bell was cooled too quickly, and cracked in several places around the lip, and in one place a piece weighing about 11 tons was broken off. The uneven thickness of metal also aided the breaking. The great Moscow broken off. The uneven thickness of metal also aided the breaking. The great Moscow bell has therefore never been sounded, but laid in its casting-pit, partly uncovered, for a term of 103 years, in which time it was held in reverence by the natives, who were extremely jealous of its being touched or measured by strangers. Thus it lay as an object of wonder to travelers, and the people of Moscow visited it with pride at their festivals. In the year 1836 the Emperor Nicholas decided to have the bell exhumed and raised, which was accomplished with great difficulty and expense. The engineers who first undertook to raise the bell were not given a fair chance to accomplish the work, because on their first trial the tackle was too light and gave way, for which the engineers, it is said, were sent to the mines of Siberia. The Board of Admiralty then un-dertook to raise the bell, and succeeded in placing it in a position south of St. Ivan's Church, on an open plaza in the Kremlin, near to where it was cast. It is said that the Empress Anne presented the bell to the church, but however that may be, it is known that the fragments of the bell which fell and broke in 1706 were used, and the the citizens of Moscow contributed largely to the metal in the bell, which contains much silver and some gold. It is said that the value of the metal in the bell is \$332,000, all uncirculating and dead money, for the bell has never struck a note.

In some records of the great Moscow bell

it is stated that the bell was actually hung and rung in the tower of St. Ivan's Church, and that it had been broken by falling to the ground. It is also stated that the building over the casting-pit took fire after the bell was cast, and the water used for putting out the fire fell on the bell in the pit and caused its breaking. But these records have been contradicted by competent judges. The form of the bell and its bas-relief ornaments are masterpieces of fine art. Omitting the accidental unevenness of thickness, the proportions of the bell indicate that its con-

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ecial attention given to the Manufacture of Chains for nes; Mining and Dredging Chains; "D. B. G." Special ne Chain.

much to see the Tzar Kolokol recast the same size, and the form and ornamente exactly preserved. With our present knowledge and experience in founding, the recast bell would be a success.

The other great bells in Moscow and other places are noted in the accompanying table, in their order of sizes. The Russians have generally a great number of bells of different sizes in their churches, but they are not toned for musical harmony or melody, and their ringing is not agreeable to strangers, who often make severe remarks upon their noise. During my five years in Russia I could never get accustomed to or appreciate the bell-ringing, which is a disagreeable jangling. The great bell in St. Ivan's Church is rung three times a year, and produces a tremulous effect throughout the city. GENERAL MERCHANDISE BROKERS. like distant thunder or the low notes of a powerful organ. The old bells of Russia are much better in tone than modern bells cast in Moscow 25 years ago or thereabout, but I have information that they make better bells now. The Russians never swing their bells, but hang them stationary, and even the smallest church bells are rung by ropes attached to the clappers.

HE LARGEST RINGING BELLS IN THE WORLD.

Names and Location of Bells.	Date Cast.	Diameter. Inches.	Weight. Pounds.
Moscow, Tzar Kolokol	1873	273	443,772
Burmah, Mengoon		2037	201,600
Moscow, St. Ivan's	1810	185	127,350
Fekin, Great Bell		356	120,000
Burmah, Maha Ganda		155	95,000
Nishni Novgorod		251	69,664
Moscow, Church of Redeemer	1879	136.3?	60,736
Nankin, China		113	45,000
London St. Paul's	1881	114.25	43,000
Olmutz, Bohemia		121	40,320
Vienna, Austria		118	40,200
Westminster, London		113.5	35,680
Erfurt, Saxony	1487	103.6	30,800
Notre Dame, Paris	1º 80	103	28,670
Montreal, Canada	1847	103	28,50
York, England	1845		34,080
St. Peter's, Rome	1786	97.25	18,000
Great Tom, Oxford	1680	84	17,C14
Cologne, Germany		95	16,016
Brussels, Belgium		95.81	13,848
State House, Philadelphia	1875	88	13,000
Lincoln, England,	1834	82.85	13,096
St. Paul's, London	1716	81	11,500
Exeter, EnglandOid Lincoln, England	1675	76	0,846
Westminster, London	1857	75.5	8,960

China is next in order of great bells, but their awkward form and projecting orna-ments make them far inferior in tone to our ments make them far inferior in tone to our bells. The great bell in Pekin weighs 120,-coo pounds, diameter 13 feet, and hight 14 feet 6 inches. It is rung by one man strik-ing its outside by a wooden mallet. An or-dinary iron clapper would probably break the bell, on account of its irregular distri-bution of metal. The great bell of Nankin veighs 45 coo pounds. Large bells are very weighs 45,000 pounds. Large bells are very common in all cities of China, but are bad in tone, and chime-ringing is unknown there. The construction of Chinese bells shows absolute ignorance of the science of acoustics as applied to that art.

as applied to that art.

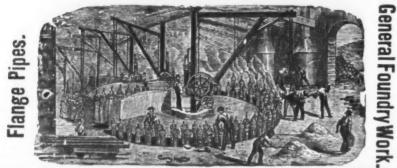
In Japan ringing bells are very common, and are a little better than those in China. They make the bells cylindrical, with a spherical top, and ring them by a weight hung on a rope striking the bell outside. The Chinese and Japanese bells require double the amount of metal for the same volume of sound produced by our bells. The ancient literature—that is, from the year 1495 to the end of the last century—was rich on bells, and the subject was treated by able scientific men. A civil judge, Maginus Tinself and the subject was treated by able scientific men. A civil judge, Maginus Tinself and the subject was treated by able scientific men. I 405 to the end of the last century—was rich on bells, and the subject was treated by able scientific men. A civil judge, Maginus Tintunatius, in the Venetian service at Candia, when besieged by the Turks in the year 1571, was taken prisoner, and in his captivity amused himself by writing a treatise on bells, which is said to be the best written on that subject; but, as the Turks considered the bell as a symbol of sinful infidelity, the author was beheaded by the order of a pasha. The manuscript was, however, preserved and published, by which his name is immortal. When the Turks took Constantinople, in 1453, they forbade the ringing of bells, for the purpose of preventing signals being given for popular revolt. The art of bell-founding has not advanced in this century, but has gone backward in many cases, which proves conclusively that a good bell cannot be produced by practical experience alone, but a scientific knowledge of acoustics is necessary with experience, not only for making a good bell, but also for producing the maximum volume of sound with the minimum quantity of metal. producing the maximum volume of sound with the minimum quantity of metal.

The Bank of England.

Some idea of the immensity of the business of the Bank of England may be formed from the fact, stated by the London Globe, that it has paid during the last five years, in round numbers, no less than 77.745.000 notes, the original value of which was over notes, the original value of which was over £1,750,626,600. The Bank of England is the sole issuer of English currency, which is accepted at its face value the world over. Besides doing a general discount business, the Bank of England is the depository for all other English banks. Its money balance is the money balance of the realm, and to keep it isafe proportion is to regulate the mone situation of the Kingdom. The Bank of England is owned and managed by private stockholders for £35,000,000. As a safeguard it does not reissue a note. "It is," says the London Globe, "beneath the dignity of the bank to take, or to appear to take, advantage of accidents to their notes, and if there is any accidents to their notes, and if there is any possibility of establishing the identity of any one of them, it is sure to be duly honored. Even where a note is entirely destroyed, proper evidence of the fact of destruction will be accepted and payment made. A lost note will in some cases be paid, and there is one occasion recorded upon which the liberal attitude of the directors in a case of this kind involved. rectors in a case of this kind involved them in a loss of £30,000. A bank director declared that he had lost a note for that amount, and upon his giving an indemnity for the sum, in the event of the note ever turning up, the money was paid to him. Many years after his death an unknown person presented the missing note. The paper was undeniably good, and the bank had no alternative but to cash it, as is was payable to bearer on demand, and as

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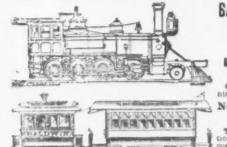
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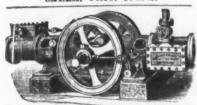
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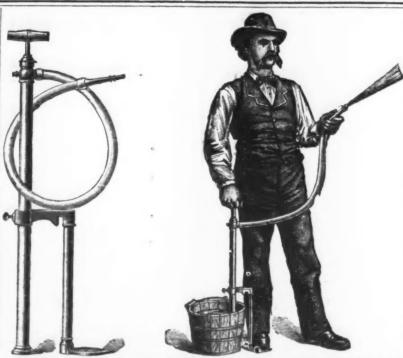
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the heirs of the bank director who had lost not be recovered. At the end of five years the old notes are thrown into a furnace the old notes are thrown into a furnace specially constructed for the purpose and burned. It is a curious fact, however, that so firm in texture is the paper of a genuine Bank of England note that burning alone can hardly destroy it." The bank receives interest on the securities deposited for notes; but it renders great service to the public in various ways. It has the entire management of the public debt, conversions, circulating exchequer bills, payment of annuities, &c., and it advances annually the amount of the land and malt taxes. It is required to give sovereigns in exchange for bullion to all comers, receiving a small commission. The whole volume of money, in reserves and in the hands of the people of the Kingdom is estimated at £75.000,000, or not more than one-third the volume of the circulating medium of the United States. How this comparatively small volume of the view rive his required to give sovereigns in exchange for bullion to all comers, receiving a small commission. The whole volume of the circulating medium of the United States.

The Industries of New York.

According to the census of 1830, there were at that time 513,377 persons pursuing gainful occupations in this city. They were divided into four classes: Agricultural, professional and personal services, trades and transportation, and mechanical and manufacturing. Of the whole number so engaged, 378,159 were males and 135,218 females. Between the ages of 10 and 15 years, inclusive, there were 10,994 boys and 7471 girls employed. The nativity of the persons engaged in all classes of occupations was in part as follows: United States, 240,076; Ireland and Great Britain, 135,811, and Germany, 92,657. Altogether there were 218 mechanical and manufacturing industries of one sort and another, employing a total capione sort and another, employing a total capi-tal of \$181,206,356, and the products of these SKINNER'S PATENT

COMBINATION CHUCK.

Lat of \$181,200,350, and the products of these were valued at \$472,926,437. These 218 industries gave employment to 146,179 males over 16 years of age; 71,795 females and 9878 children and youths under that age. The total of wages paid out was \$97,030,021. Some facts concerning the leading industries are given in the following tables:

	rns.		ge No. h nployed.					
Industry.	No. of concerns	Males above 16 years.	Femalesab'v	Children and youths.				
Boots and shoes	839	4.386	1,078	181				
Bread and bakery	753	5,143	283	RIX				
Tobacco	761	9,423	4.575	478				
Clothing	736	30.444	30,672	278				
Carpentering	400	3-438		6.8				
Printing	412	8,016	979	584				
Plumbing	401	1,889	8	1 2 2 3				
Furniture	209	5-538	802	215				
Painting	243	3,794	19	39				
Foundry	267	9.352	38	370				
Jew-lry	240	1,002	243	100				
Clothing, women's	230	1 509	1-,750	47				
Blacksmithing	202	543		31				
Confectionery	187	1.003	629	115				
Tinware	177	1,449	5.9	104				
Sadolery	274	590	13	30				

Uni:n Manufacturing Co., to the 218 industries was 11,330, and the warehouse, 96 Chambers St., New York. NEW BRITAIN, CONN. value of the materials used was \$288,441,691. Other facts concerning the leading industries were as follows:

Industry.	Capital	Wages paid.	Material.	Products.
	960		40	on
Boots and shoes.	1,898,669	8,474,050	3,621,822	9.662,000
**** *** ****	2,032,035	1,475.783	6.045,762	0.415.424
Tobacco	5,858 448	6,006,455	8.805,147	80,747,308
K	\$2,300.843	14,012 80;	40,309.340	60,708,607
gentering	1.745,782	2,242,060	3-254.265	7.000,215
Friedly g	14,774 923	5,876,868	7.3:9.550	21 605 354
r lumbing	8:8:495	1,128.950	1.269.728	3.9 0.414
r orbiture	4-353 683	3, 161, 106	4.204.602	0,00-,770
raming	841,214	1,499,719	1,186.478	3,058,487
r oundry	IC,615,518	5,373,142	6,:33,805	14.710,825
Y	2.531,635	1190:98 1	2,533.976	C,C02,108
Lofbing Wornen.	4,8 5,665	3 886 715	11,765.305	E8,930,653
Ducksmithing	202,47 3	3.7, 50	284.517	937. 144
Confectionery	1,521,755	542.775	3,057,000	4.502 522
Illware	993,720	748,208	1,611,389	3,053,501
Saddlery	41A.272	314.444	465,032	1,037,768

Trades for Americans.

Two or three weeks ago, says a writer in

the trades, partly because he is barred out. it repudiated all liability, the money could by the trades unions, but more because he not be recovered. At the end of five years does not choose to go into them. To this the old notes are thrown into a furnace general rule, there are, however, two nota-

in reserves and in the hands of the people of the Kingdom is estimated at £75,000,000, or not more than one-third the volume of the circulating medium of the United States. Upon this comparatively small volume of money is carried on an industy and commerce reaching over all the world, and which is at least double that of the United States. It is a wonderful development of the methods of economizing the use of money by banking and the equivalents of trade by which the volume of trade of the Kingdom has multiplied prodigiously, without any increase in the volume of money.

drudgery more grimy and shabby tnan any other mechanic. It is no ambition for gentility that moves him in these pursuits. But they open to him possible short roads to success; they give his inventive faculties some play. It is only one man in a hundred who out of the composing or press room becomes editor or publisher, or who turns out to be a lucky Harrison or Winans in the machine shop. But each boy is confident that he will be that man. When he "goes into business" as salesman at \$3 per week, he knows he will some day be an Astor or a Stewart. When he goes out to Colorado as a cowboy he sees in a vision his own cattle grazing on a thousand hills.

Hence he turns his back on the trades in which there is no chance for sudden succes and by which the plodding German or Irish-man, generation after generation, secures a steady limited competency. Our lad must put on seven-league boots to go to his for-tune, or he will not go at all. In a certain sense, therefore, there appears to be no remedy for this present condition of affairs. The edy for this present condition of affairs. The leopard cannot change his spots nor the Ethiopian his skin, and the vivid, inventive, sharp-eyed American, fond of earning and squandering money in bulk, will never be brought to plod and save and enjoy life a pennyworth at a time, like his European neighbor who was not born prospective heir to a great estate. A certain grade of our skilled trades will always remain, it is probable, in the hands of foreigners.

able, in the hands of foreigners.

But one lesson our American lad must learn before he succeeds, and, as he is exceptionally sharp, he generally does learn it when he finds he does not succeed without it. That is, steadiness of aim. Instability is our national defect. The American of 24 who has made up his mind as to his business, his politics and his religion, and who abides by them for the next ten years, is a marked and weighty man. Take the is a marked and weighty man. Take the crowd of fortune-seekers pouring now into Colorado or Dakota, and you will find each of them has tried two or twenty methods of carning a living before he fell back, like Antæus, on the bosom of Mother Earth to gather strength. Two or three names in each profession, in trade and invention would complete the list of living Americans who have made a great and signal success. would complete the list of living Americans who have made a great and signal success, and they are invariably men of infloxible singleness of purpose. The American lad, educated or half educated, is too apt to scatter his shot and hit nothing. He would be suddenly rich, he would be known as a politician, he would be a man of society. Hence, with a heritage of natural abilities above mediocrity, with keen perceptions, fine tastes and a limitless estate waiting for him to claim, he fails. It is a story as old as the world. "Reuben," said the seer, thousands of years ago, "is the first-born; the excellency of dignity and the excellency of power. Unstable as water, he shall not excel."

Postal Cards.

The postal cards of the United States Government are turned out near the village of Castleton, on the eastern bank of the Hudson River, about eight miles below Albany. The postal-card factory proper, there being several buildings devoted to the purpose in question, is a one-story brick building of very unpretending appearance. The cardboard is received from the paper mill in sheets 21 is received from the paper mill in sheets 21 inches by 30—a size just large enough to cut up into 40 postal cards. The sheets are first printed on an ordinarily large cylinder 'job' printing press. The impression is taken on a plate containing 40 card faces with stamp, the monogram US, the scroll and words 'postal card,' and the line, 'Nothing but the address can be placed on this side." Thus, when a sheet of cardboard is run through the press it comes out with 40 postal cards completely printed, ready to be cut up into the one-cent missives with which t up into the one-cent the public is familiar. There are three presses, any two of which, it is thought, are sufficient to supply the demand without being

From the presses the printed sheets are From the presses the printed sheets are taken to the cutting machine, where they are rapidly cut into strips containing to cards each. They are fed between rollers on which there are four circular blades. The cutting into strips is done as fast as a tolerably active boy can pass in the sheets. From the first cutting-machine the sheets are taken to a second cutter, where they are fed through rollers with circular blades, set as far agant as the width of a postal card. Two or three weeks ago, says a writer in the Tribune, a careful inquiry was instituted in Philadelphia, the largest manufacturing city in the country, as to the relative number of foreigners and native Americans engaged in the trades and as skilled handicraftsmen of every kind. The result was startling. Foreigneers, especially the Germans and Scotch-Irishmen, had shouldered our own people altogether out of almost every such occupation. The American boys could be counted on the fingers who were learning the trade of weaving in the great woolen and carpet manufactories. The same story was told in the cotton mills, at the stocking looms. Yet the wages paid to these skilled workmen are high and steady. The Scotchman or North Irishman earns from \$18 to \$20 per week i Philadelphia, owns his comfortable dwelling, and brings up his son to the same trade which his own father, most probably, followed in Giasgow or Londonderry. The American boy has not learned this sure, slow road to comfort from his father. There was the same report from manufacturers of paper, soap, shoes, clothes, furniture, shipbullers, cutlersevery industry, in short, but two. The American boy of the class which does not an enter the professions is not to be found in

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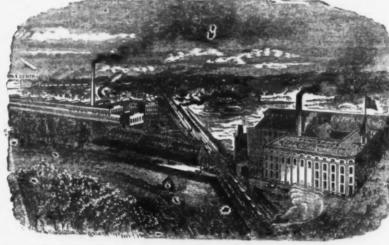
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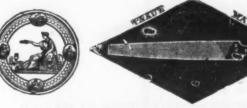
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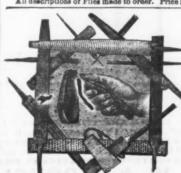


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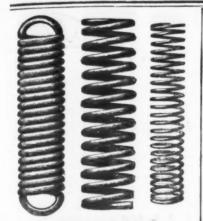
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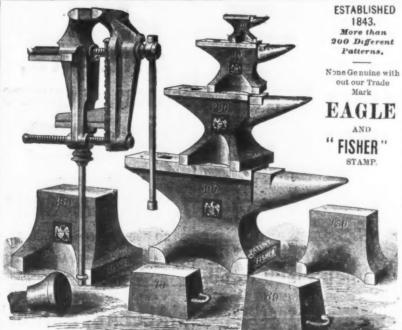
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strawboard boxes are made rapidly on the spot by an ingenious machine. The whole machinery for making postal cards, after the cardboard is received from the paper-mill, could be operated in a room 30 feet square. The force produces and packs an average of the country of the American Collins matchets in interior of the American Collins matchets in interior of the American Collins matchets in interior of the American Collins matchets. 1,250,000 cards each working day.

English and American Edge Tools.

The Wolverhampton correspondent of the Ironmongen, in a recent communication to that paper, gives the following information on the above subject, which will be read with interest by American edge-tool manu-

"With the view of ascertaining the ad-"With the view of ascertaining the advances which have of late been made, both as to quality and design, in cultivating and edge tools of Wolverhampton manufacture, I have this week carefully inspected certain of the leading products at some of the principal works, and have compared them with similar articles produced a few years ago. The comparison was most striking, and the The comparison was most striking, and the progress that has been made reflects the utmost credit upon the Wolverhampton firms. most credit upon the Wolverhampton firms. The superiority is marked alike in quality, in style and in finish. This has been brought about mainly by the adoption of machinery instead of manual labor, and by the increased employment of steel, in both of which particulars important strides have of late been made. The machinery has proved especially valuable in greatly improving the eyes of hoes, picks, axes, adzes, hatchets, hammers and other tools. The eyes are now at once deep, smooth and light, and yet perfectly strong and well tapered. As they are punched, all the eyes in a given class of tool punched, all the eyes in a given class of tool are exact counterparts, so that no shaving of handles is required when fitting them on, while, by reason of the depth and slope of the eyes, the handles fit tight. In hoes and picks, but especially in the multifarious pat-terns of the former, intended for the wide Brazilian market, some of the cheeks are very high, makers priding themselves upon the great additional strength thus imparted. Instead of, as under the system of manual labor, the tools being made out of two or more pieces of iron and steel welded togother. many of them are now made of one solid piece of metal—either all steel or wrought iron with steel let into the cutting parts.

In no tools does this improvement appear more conspicuously than in the Brazilian hoes, some of which, of the round-shouldered pattern, I found were being turned out at Messrs. Edwards's works of the large dimen-Messrs. Edwards's works of the large dimensions of 11 by 13 inches, formed of one solid piece of stoel. These hoes have bayonet, square or round ribs, as desired, and their finish is such that they will reflect like a mirror. Messrs. Edwards's "Royal Express" hoe, which has for several years past been an especial favorite with some of the principal tea-plantation companies of India, and which is manufactured out of the firm's patent all-steel mature, is particularly notepatent all-steel mixture, is particularly note-worthy, on account of the strong throat sup-Manufactured of heavy metal, requiring porting the eye—an improvement which the firm claim is superior to anything yet introduced. This firm also claim to be the original makers of the Anglo-American pick, which they label as made of best steel. It is a splendid tool, having solid cast-steel ends of 7 inches, and will stand the test of being driven into granite without flinching. It is driven into granite without flinching. It is in large demand for road-making, from Australia and the Cape in particular, and the eye is a decided improvement upon the ordinary socket-eye, since it has a cheek of some 3% to 3% inches in hight, and, being perfectly smooth, fits exactly the American hickory handle. This tool is also made entirely of steel. Axes and adzes, labeled "solid cast steel," the former made in imitation of American patterns. Is, wat the Grifiion of American patterns, I s wat the Grif-fin Work struck on a bar of iron without at fin World struck on a bar of iron without at all turning their edge—an experiment which speaks for itself as to the quality of the goods. Some of the broad Brazilian axes were steeled up 3½ inches, and the American-pattern felling-ax, made, as were the adzes, out of one solid piece, was in every respect a first-class tool. The perfectly waled or beveled edge of the adzes was striking. At their new Grißin Works Messrs. Edwards are turning out all-steel spades and shovels, for the South American and other markets, which evidence great improvement over forwhich evilence great improvement over for-mer patterns, the strength and exact suita-bility of design for the work intended being very satisfactory. In a word, there would seem to be no edge-tool firm who are study-

machinery at the works of the Eagle Edge Tool Co., whose new goods display many of the general features of advance referred to New Britain, Conn.

warfrooms,

23 Chambers St.,

the general features of advance reterred to at the beginning of my report. Hoes, picks, axes and adzes are being turned out on the American principle, and the company have received from the London representatives of two or three leading Colonial importers most colonial importers and the beginning of my report. Hoes, picks, axes and adzes are being turned out on the company have received from the London representatives of two or three leading colonial importers most colonial importance. encouraging reports of the favor with which the goods have been received in some parts of Austral a and South Africa in particular. In Australia their axes and picks are beginning to sell against American products, and the company believe that they have now obtained the best opening for this class of work that they have had for years past. The

these piles are packed into a strawboard box, each box thus containing 500 cards. The strawboard boxes are made rapidly on the spot by an ingenious machine. The whole for 100 casks. Their Indian taper-bent

imitation of the American Collins matchet.
At the Eagle Works also I found a splendid collection of axes and hatchets of several descriptions, and of mens' and boys' sizes, which had just arrived direct from the States as samples, which the company intend to imitate as nearly as possible, alike as to quality, design and finish, and the success which has already attended their efforts in this direction gives them every confidence in the future. The improvements which John Perks & Sons have of late made in their tools appear chiefly in their all-steel their tools appear chiefly in their all-steel highly-polished hoes for Rio; in the larger quantity and better quality of the steel put into their adzes for the Havana market, and in the character of their heavy felling-axes, which are going to Bombay in particular in increasing quantities. The firm are accustomed to supply similar axes to our home government. The hoes and other tools which the Chillipston Iron Co. are sending. which the Chillington Iron Co. are sending away to South America and other markets likewise show various improvements over those formerly produced.

Production of Coal in Great Britain.

Dwelling upon the dissatisfaction now so prevalent among British coal miners and a movement in favor of a limitation of the output, the London Mining Journal submits the following, which will be found to explain, to some extent, the origin of the present

difficulties:
From returns just received it appears that
the quantity of coal raised in 1882 was
156,500,000 tons, being an increase of
2,313,000 tons over the previous year. So
fir as household consumption is concerned,
it is evident that advantage has been taken
of every improvement calculated to minimize the quantity used for ordinary purposes,
while so far as recards the expenditure of while so far as regards the expenditure of fuel for the smelting of metallic ores, the lowest point has not yet been reached, but greater efforts will now be made in that direction by the attempts being made by the miners to advance the price of coal. From the same cause also we may expect that m re favorable systems of working coal will be adopted, for it is admitted that able systems of working coal will be adopted, for it is admitted that, notwithstanding considerable improvements in the general system of coal mining, and the utilizing of slack and dust for coke-making and other purposes, yet a good deal of the material is wasted by bad working and carelessness. There does not appear any reason why, by the various modes of working coal, there hould be a loss of from you take. should be a loss of from 10 to 15 per cent, as is the case, for pillars are left standing that should be carried away, and extensive barriers are left against the influx of water, owing to the want of reliable plans by which he exact houndaries could be determined. But we have the fact of a marked diminution in the increase during last year, and it is by no means improbable that this will continue to be the case for some years to come, until the output becomes stationary for a time, to be followed by a gradual decrease in the drain upon our reservoirs of fuel.

The miners are now doing all they can to bring this about earlier than would other-wise be the case, and they will, of course, be the sufferers in the long run, for they are not guided by the light of past experience. They complain that there is an excess of projection over consumption, and that the latter must be diminished to a marked extent for their benefit. No doubt there are now more coal mines than are actually needed to meet our home and foreign requirements, but for this state of things the needed to meet our nome and foreign requirements, but for this state of things the miners have only themselves to blame. A few years ago, when the productive power of the country was not equal to the demand, they decreased the output while enjoying exceptionally high wages, and so caused the opening out of new coal mines in nearly all parts of the kingdom, and they now complain or the result brought about by their own conduct. Indeed, they are now attempting to initiate the same policy which has been so injurious to themselves as well as their employers. That this has been the case we need only draw attention to the quantity of coal raised per man during the last 10 or 12 years to bear out the remarks we have made. The following figures show the quantity of coal raised yearly, the number of persons employed in and about the mines under the Coal Mines act, the output per man, and the price of the best coal over per man, and the price of the best coal over the ships' side in the Thames:

Tors Number Tons raised, employed, per man. Falsed. 187,447.557
117,357,000
118,447.557
117,357,000
118,447.300
125,67,000
131,867,100
132,514,800
134,010,700
132,514,800
134,010,700
135,610,000
140,600,000
154,184,300
156,500,000 345.446 370,881 418,088

From the above will be seen the years of highest prices and the rate of advance or decline. In 1870, when the price of coal was low and the miners' wages were in a similar state, there was toward the close of it a movement of a favoreble character, and this increased to some extent in the following year. In 1872 wages and prices went up together, and it will be seen that the result was a considerable decrease in the output same nomarks apply in some degree to the Cape trade, whence repeat orders for the superior-quality tools are arriving. It would seem, too, that some of the London merseem, too, that some of the London merchants are awaking to the advisabilit: (f sending out better goods. A large Kimberley house in London stated only a week or too. chants are awaking to the advisabilt? of sending out better goods. A large Kimberley house in London stated only a week or two ago that it was their intention to discourage the trade in the commoner class of tos, and to send out only the superior artice, and hey expressed their willingness to pay the increased prices which, for the all-seel tools, are of course demanded. In their soud Brazikan hoes the company are very successful in turning out a light, smooth eye, with good cheeks, even in a small-sized article,

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BUTCHERS' KNIVES, BUTCHERS' STEELS,

SHOE KNIVES. INFRINGEMENT .- SPECIAL NOTICE.

It having come to the knowledge of JOHN WILS. It has Counterfeit Butchers Knives, purporting to be of his manufacture, are being sold in the United States, he hereby cautions all purchasers of his Knives and Steels to be on the alert against such impositions.

JOHN WILSON also hereby gives NOTIC.3, that it is his determination to institute Legal Proceedings against any person or persons who may be detected infringing his Trade Mark, and with that view he will handsomely reward anyone supplying such evidence as will lead to the conviction of the Makers and Vendors of the said Spurious Imitations.

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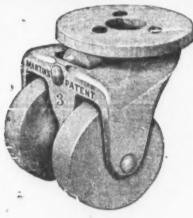
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Table Knives, Razors, Shovels, &c., &c., of every description.

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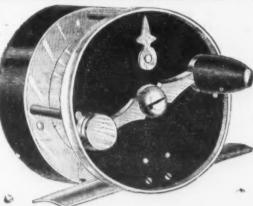


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Wrenches. PATENTED. December 26, 1871. December 28, 1875.

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The backstrain when the wrench is used is borne by the bar—not by the handle.

The strongest Wrench made, and the only successful Re-enforced Bar.

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OHIO CHAMPION FORCE PUMP BEST PUMP MADE! Located at Kenton, to avoid City ex Send for Illustrated Catalogue (75 pages

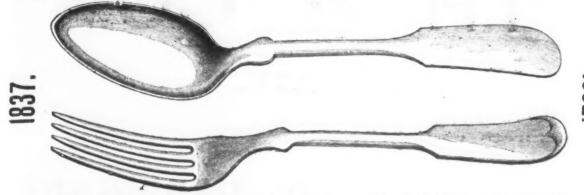
THE WIRE GOODS CO. Worcester, Mass., MANUFACTURERS OF

SHARP GIMLET POINTED WIRE GOODS.

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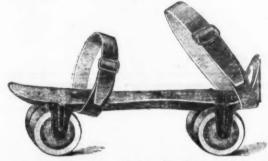
HALL & ELTON'S GERMAN SILVER.

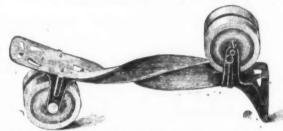


In addition to Spoons of this well-known brand, we are now prepared to furnish Forks of the same quality. We GUARANTEE these goods to be SOLID and of UNIFORM quality throughout, with no coatings to wear through or flake off, and with no liability to RUST.

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NEW YORK CLUB ROLLER SKATES.





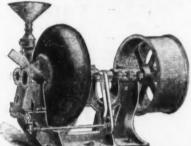
This cut shows one of the skates twisted and

The lightest, easiest working and most durable Roller Skate ever made. The frames are made from a fine quality of decarbonized steel, and cannot possibly be broken in using. The heel support is preferable to the ordinary one of leather, as it cannot wear through. Besides these, the skate has many other advantages, and the price is low as compared with others. Patented June 21, 1881.

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It is simple and not liable to get out of order, Revolving Shell being constructed of Siemens-artan steel, and all parts mechanical in design and or first-class construction. Weight, 5,500 lbs. eaviest piece, 1,500 lbs. It will pulverize 7 to 10 TONS IN 10 HOURS with 30 H. P. For Circulars and full particulars, apply to or address

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GEARED

was fast approaching induced by the high rates charged for coal and the limitation of the output on the part of the miners. Companies were formed and some millions of capital were invested for the purpose of purchasing old collieries and opening out new ones, so that in the course of a very few years there was more coal produced than was required. In fact, the productive power of the country has increased too rapidly owing the country has increased too rapidly, owing to the peculiar state of things which prevailed in 1872 and 1873, and for this no persons are more to blame than the miners themselves, for it will be seen by a reference to the figures we have given that they worked more or less according to the wages they received, and these were, in a great they received, and these were, in a great medsure, regulated by the price of coal itself. As an illustration of this, if the year 1873 is taken, it will be found \$12,109 persons raised 127,016,700 tons of coal, while in 1882 it only required \$01,000 workmen to get 156,500,000 tons. This shows plainly the effect that wages have upon the individual production, and it need scarcely be said that if the miners had worked anything like as hard in 1873 as they did in 1882, they would now be in a very different position to what they are, for there would be a considerably less number of coal mines than there are, and as the productive power would not be in excess of the said that if the productive power would not be in excess of the said that if the productive power would not be in excess of the said that if the productive power would not be in excess of the said that if the productive power would not be in excess of the said that if the productive power would not be in excess of the said that if the productive power would not be in excess of the said that if the said that if the said that if the miners had worked anything like as hard in the said that if the miners had worked anything like as hard in the said that if the miners had worked anything like as hard in the said that if the miners had worked anything like as hard in the said that if the miners had worked anything like as hard in the said that if the miners had worked anything like as hard in the said that if the miners had worked anything like as hard in the said that if the said that if the miners had worked anything like as hard in the said that if the said productive power would not be in excess of the consumption, the profits and wages of mine owners and miners would be very different indeed to what they are, and there would be no necessity for attempting to reduce the output of coal by artificial means.

The New Steamer Fulda.

The steamer Fulda, the third fast steamer The steamer Fulda, the third fast steamer of the North German Lloyd fleet, arrived flere on her first trip on March 23. She was built on the Clyde in the shipyard of Messrs.

John Elder & Co. The Fulda is the sister ship of the Werra. Her length is 455 feet; breadth of beam, 46 feet; depth of hold, 36.5 feet; gross tonnage, 5150 tons, builders' measurement. She is propelled by compound engines of the three-cylinder type, which have two low-pressure cylinders 86 inches in diameter, and one high-pressure to texture to the collection of 62 inches diameter. The stroke year niches in diameter, and one high-pressure cylinder of 62 inches diameter. The stroke is 5 feet. The engines have developed 6000 horse-power, 600 more than stipulated by the terms of the contract. In a full-speed run 17 knots per hour can be made. The steamer has ample accommodations for 1100 steerage, 150 second-class and 170 first-class passengers. The steerage passenclass passengers. The steerage passengers amount of congers are berthed on the lower deck, and their quarters combine many arrangements for light, ventilation and comfort not found in other Transatlantic passenger 18, and all children was steamers. The men's and women's compartments are kept strictly distinct, and private cabins are provided for families. The second cabin is located at the after end of the ond cabin is located at the after end of the vessel. The staterooms for the first-class passengers are situated before and aft of the \$24,700.

State of the distribution of the state of t passengers are sittlated before an art the saloon, and are fitted up with every accommodation and convenience that experience could suggest. The ventilation is unusually good, the atmosphere being excellent in all parts of the ship. The chief dining saloon is a very handsome and comfortable apartment 50 feet long and 45 feet wide, and is lighted by a cupola from the promenade deck. As regards equipments, the vessel is complete, being provided with 280 electric lamps, electric bells, bathing-rooms, steam windlasses, steam and hand steering goar, steam pumps, fresh-water condensers and all the recent appliances for insuring safety to the vessel and comfort to those on board. saloon, and are fitted up with every accommodation and convenience that experience could suggest. The ventilation is unusually the recent appliances for insuring safety to
the vessel and comfort to those on board.
All in all, the Fulda is decidedly one of the finest ocean steamers ever seen in this port.

—Important archæological discoveries have recently been made at Mitla, a village in Mexico, which is situated between 20 and 30 miles from Onjaca, in the table-land of Mixtecapan. Extensive remains of ancient palaces and tombs have been revealed, and they are accordingly remarkable from the Mixtecapan. Extensive remains of ancient palaces and tombs have been revealed, and they are exceptionally remarkable from the columns supporting the roof, a style of architecture peculiar to the district of Mexico in which they are to be found. These ruins have been explored by Herr Emil Herbruger, although he was not permitted to excavate the sites. In a description of the ruins Herr Herbruger states that the great hall contains vix columns and is about 121 feet long by 23 feet broad. Each column is about 11½ feet in hight, and is of solid stone. The hall, which is entered by three doorways, was used as an ante-chamber for the Royal Guards. The tombs are all of equal size and T-shaped. The walls are emissing the year, 2,317,149 tons, valued at \$4,190,136. The four establishments in Teunessee represent a capital of \$200,021, and employ 114 hands, all males above 16 years; wages paid in 1880, \$38,820; materials, 179,317 tons of coal, valued at \$124,137; value of other materials, \$8092; total value, \$132,-29; total amount of coke produced, 91,-675 tons, valued at \$212,403. The two establishments in Teunessee represent a capital of secondary valued at \$200,021, and employ 114 hands, all males above 16 years; wages paid in 1880, \$38,820; materials, 179,317 the secondary valued at \$212,407,136.

The four establishments in Teunessee represent a capital of \$200,021, and employ 114 hands, all males above 16 years; wages paid in 1880, \$38,820; materials, 179,317 the secondary valued at \$212,407,137; value of other materials, \$8092; total value, \$124,137; value of other materials, \$300,000, ware not operated during 1880. The 12 establishments in Teunessee represente acquired in 1880, \$45,042

If The new steamship Tremont, built by John Englis & Son for the Portland Steam Packet Company, now lies at the pier foot of East Thirteenth street, East River, where she is receiving her finishing touches. When completed the Tremont will be elegantly furnished. The Messrs. N. F. Palmer, Jr., & Co., are attending to the machinery. The Quintard Iron Works will furnish the Trequintary of the machinery of the same size. As answer for any other of the same size. As Quintard Iron Works will furnish the Tremont with a vertical-beam engine, 56 inches diameter of cylinder, 11 feet stroke of piston, to be operated by Sickle's cut-off of the most approved pattern. The engine will be handsomely polished and nickel-plated. She will be supplied with Lighthall's surface condenser and patent tubes and packing. She will have one marine tubular boiler, 16½ feet long, 13 feet long, 14 feet high and 18¼ feet long. feet wide, 14 feet high and 18½ feet long, to be braced for carrying 45 pounds steam pressure. She will have Mahonay's patent wheels, 33 feet diameter over buckets, 7½ feet face. The engine-room will be on the saloon deck. Her speed will average 18 miles an hour. Mr. A. A. Wilson, of the Quintard Iron Works, designed the entire

Philadelphia, at 6 o'clock, which makes the schedule time 1 hour and 52 minutes. The train does not stop until Trenton is reached, working up to its rating. a stretch of 57 miles. Here four minutes are lost. The next stop is Germantown Junction, where three minutes more are lost interesting experiments which were recently from the schedule time. Finally, Powel made near Baltimore, Md., with a powerful

was fast approaching, induced by the high town avenue causes a delay of two minutes

The Coke Industry.

Mr. Joseph D. Weeks, special agent of the Census Bureau, recently completed and filed with the proper authorities his re-port of the coke industry. The following is a brief summary, the original report giving the States in detail, dividing them into counties where manufactories exist: There are 149 coke establishments in the United States, representing a continuous

of coal were used, costing \$2,761,657. The value of other material used was \$233,784; total value, \$2,995,441. Total amount of coke produced during the year, 2.752,475; tons, valued at \$5,359,489. The coke establishments are distributed in ten States, as follows: Alabama, 4; Colorado, 1; Georgia, I; Illinois, 4; Indiana, 2; Ohio, 15; Pennsylvania, 104; Tennessee, 4; Virginia, 2; West Virginia, 12.

The four establishments in Alabama reconstructions

West Virginia, 12.

The four establishments in Alabama represent a capital of \$135,500; number of hands employed, males above 16 years, 64; paid in wages in 1880, \$38,500; materials, coal, 67,376 tons, valued at \$75,314; value of other materials, \$1304; total value, \$76,618; total amount of coke produced during the year, 42,035 tons, valued at \$148,026. \$148,026

Colorado's one establishment has a capi-Colorado's one establishment has a capital of \$150,000 and employs 75 hands, all males above 16 years; wages paid in 1880, \$13,500; materials, 29,500 tons of coal, valued at \$29,500; value of other materials, \$600; total values, \$30,100; total amount of coke produced during the year, 18,000 tons, valued at \$90,000.

The one establishment in Georgia has a capital of \$80,000, and employs 107 hands, all males above 16 years; wages paid in 1880, \$13,837; materials, 117,000 tons of

all males above 16 years; wages paid in 1880, \$13,837; materials, 117,000 tons of coal, valued at \$120,000; value of other material, \$4900; total value, \$124,900; total amount of coke produced, 70,000 tons, valued

The four establishments in Illinois repre-The four establishments in linnois represent a capital of \$205,000; hauds employed 18, and all above 16 years excepting 2 children; wages paid in 1880, \$9347; materials, 15,000 tons of coal, valued at \$15,000; value of other materials, \$420; total value, \$15,420; total amount of coke produced during the year 7000 tons valued at \$15,420; total amount of come product during the year, 7600 tons, valued at

and recent appliances for insuring safety to see vessel and comfort to those on board. If in all, the Fulda is decidedly one of the nest ocean steamers ever seen in this port.

Archaeological Discoveries in Mexico.

Important archæological discoveries have seently been made at Mitla, a vilhage in exico, which is situated between 20 and of miles from Oajaca, in the table-land of lixtecapan. Extensive remains of ancient laces and toubs have been revealed, and laces and toubs have been revealed.

the Royal Guards. The tombs are all of leaves and T-shaped. The walls are embellished with stone mosaics.

The new steamship Tremont, built by John Findis & Son for the Portland Steam Packet 720 tons, valued at \$216,588.

to furnish one engine with steam would answer for any other of the same size. As answer for any other of the same size. As the power of the early engines was in direct proportion to their size, any boiler of cer-tain dimensions would furnish steam for an engine developing a definite horse-power, and hence was said to be a boiler of a certain horse-power. As improvements, how-ever, were introduced and various forms of boilers and engines were adopted, it was found that the size of the boiler was not always a measure of its efficiency, and that always a measure of its efficiency, and that different engines required very different quantities of steam to develop a given horse-power. Thus it frequently happens that what is a 10-horse-power boiler for one en-gine, or a boiler that furnishes steam to develop 10 horse-power in that engine, may Train No. 19, on the Pennsylvania Railroad, leaves Jersey City at eight minutes after four every afternoon, except Sunday, and arrives at the Broad street station, the contrary, the rating of the boiler is based

Steam Plowing .- Accounts reach us of



18.

S'S.

DIRECT

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Sporting Rifle, 24 in., Octagon Barrel, 15 shots, .44 cal., Sporting Rifle, 24 in., Round Barrel, 15 shots, .44 cal., Carbine, 20 in., Round Barrel, 12 shots, .44 cal.,

- \$27.00 | Sporting Rifle, 28 in., Octagon Barrel, 11 shots, .45 cal.,
- - 25.00 | Sporting Rifle, 28 in., Round Barrel, 11 shots, .45 cal.,
- - 24.00 | Carbine, 22 in., Round Barrel, 8 shots, .45 cal.,

Double Set Triggers, \$5 extra. Extra Length Barrels, \$1 each inch.

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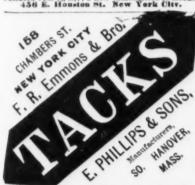
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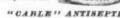


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steam plow, the invention of Mr. B. S. Benson, of that city. From these it appears that each plow cuts a furrow 20 inches wide and from 8 to 9 inches deep. Several plows may be combined and drawn by a single traction engine, an interesting feature of which is a track which the engine puts down and takes up as it moves forward. At one of the recent trials above mentioned, the engine was attached to the plows, and moved at the rate of 2½ miles per hour, leaving in its wake a strip of plowed ground 1624 feet wide. A local paper states that there are no fields in the vicinity of Baltimore large enough for a thorough trial of the plow, which is intended for the large Western districts, and especially for the Red River region in the Northwest.

Belt Clamp.

A simple belt clamp or tightener has re-Philadelphia, some idea of which can be ob-

I and 2 of the accompany-ing engravings. The device has been designed to take the place of the old and slow process of screwing wooden clamps to belts, requiring adjustment and taking up with side screws. This plan, although in very common use, consumes time and is no small item in the ex-pense of conducting a manufacturing establishment. It frequently results in the stoppage of the entire machinery in a shop, and the consequent idleness of all the workmen employed, for a considerable period. Many attempts have been made

place, the manner of using the device being clearly in-dicated by the illustrations. In the published description of this belt clamp Mr. Box directs attention to the advantages of using belts tightly drawn, especially in modern practice, in con-nection with high-speed engines, electrical machines. fast-running wood-working machinery, &c, and also to the advantage of rivets over hooks or laces, and calls at-tention to the advantages of a simple clamp of this kind for bringing the ends

of the belts into proper relationship in order to rivet
them, and also in drawing belts tight and permitting the slack to be taken up in the
case of fast-running machinery above alluded
will sometimes be careless, or from thoughtlessness neglect some important duty; hence

Mineral Wealth of Tennessee —Henry E. Colton, State Geologist of Tennessee, in his report to the Commissioner of Agriculture, Statistics and Mines of the State of Tennessee, states that the survey of the Western iron belt has demonstrated the existence of many valuable beds of ore here tofore entirely unsuspected, and that the amount of ore in that region is actually lishments from weak and ruin. This countries was a saved many establishments from weak and ruin. This countries was a simple of the 75,000 or 100,000, more or less, of engineers and firemen in the country. The record of defects discovered by the Hartford Steam Boiler Inspection and Insurance Co. during the year tells its own survey. It goes to show that boilers are often owners have any conception of, and these timely examinations have saved many establishments from weak and ruin. This country. in the value of the mineral lands. Properties which two years ago could have been bought for \$1 or less per acre, have sold for \$10, \$15 and \$20 per acre. Thriving villages have surprise up where of have sprung up where a few years ago were wild, untouched woods, and the farmers have been able to obtain good prices for their products at their homes.

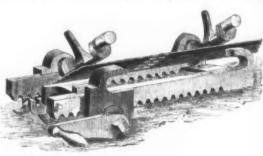
Petroleum Fuel .- The Boston Commer cial Bulletin states that the Norway Iron Works, at South Boston, believe they have succeeded in so simplifying and cheapening the process of using petroleum that it is pref-erable to the usual system of heating with gaseous or solid fuel. The petroleum is forced into a cast-iron tank, which contains a receptacle to which a large surface has been given by alternate contraction and swelling of the section by deep corrugation. Upon the surface of this interior receptacle the petroleum drops in a small stream.

Through the interior of the corrugated receptacle passes live steam, which issues from an orifice in the bottom, in a superheated condition, mixing with the vaporized oil.

The entire cylindrical tank is heated by a retorts.

Steam Boiler Explosions.

The Locomotive, in considering the boiler explosions during the year 1882, says that the number of these accidents is much larger than it should be, though when compared with the number of boilers in use in the country the percentage is small, being only .II of I per cent. of the whole. When careful and intelligent investigation is made into the cause of many of these same into the cause of many of these explosions it is found that the boilers have been worn out, overworked, or there has been some carelessness in construction, setting or management. The tendency among steam-users to hold on to old boilers and got a little worn work out of these A simple belt clamp or tightener has recently been perfected and patented by Mr. Alfred Box, of the Northern Liberty Works,



General View of Clamp Open for Belt Clamp.-Fig. Receiving the Belt.

to produce a light, useful tool which would | has no doubt been the direct cause of many facilitate work of this kind, but those that accidents. There is a demand for more have been produced have been expensive to steam—more steam—while the boiler capacmanufacture, compared with the old screw arrangement, which has been instrumental in keeping them out of general use. The who are habitual drunkards, and utterly in keeping them out of general uso. The new device seems to possess many very decided advantages, the principal feature to which the patentee directs attention being its cheap cost to manufacture. The parts are cast in such a way that one piece locks the other in place, saving all necessity of screws, and consequent machine-work and drilling in manufacture.

Fig. 1 shows the device open, ready to receive a belt to be operated upon, while Fig. 2 shows it with the belt ends in place, the manner of using

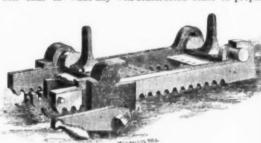


Fig. 2.—The Clamp Holding the Two Ends of a Belt Ready for Fastening.

lessness neglect some important duty; hence perfection cannot be expected in every one of the 75,000 or 100,000, more or less, of engi-

ture, Statistics and Mines of the State of Tennessee, states that the survey of the Western iron belt has demonstrated the existence of many valuable beds of ore heretofore entirely unsuspected, and that the amount of ore in that region is actually beyond the most sanguine estimates ever made. In the past this region was the seat of an extended manufacture of iron, but it was not large in the sum total. In the year 1855 there were 35 furnaces, producing about 40,000 tons of metal. At the present time there are only 5 in blast, and they produce about as much metal as the 35 did in 1855. As a seat for the manufacture of charcoal iron this region offers inducaments to the capitalist. The ore is rich in iron, and free from large quantities of the matters deleterious to the manufacture of good metal. It is easily and cheaply mined; the supply is as inexhaustible as anything mundane. Limestone is usually in immediate connection with the ore, or near at hand, and there are large areas of wooded land valueless for farming purposes, while experience has proven that this timber, when cut off, will renew itself, ready to cut again in at most 30 years. For 75 years the manufacture of pig iron with charcoal has been an established industry of the State, but only within the last 12 years has its manufacture with this increase of the mining and iron manufacture of pig iron with charcoal has been an established industry of the State, but only within the last 12 years has its manufacture with this increase of the mining and iron manufacture in the value of the mineral lands. Propthis increase of the mining and iron manufac-turing industry has come also a large increase in the value of the mineral lands. Propboiler. It will pay in the end to employ competent men for this work. When the boiler or boilers are set, arrange to have them periodically inspected, which, with a sober, competent engineer in charge, will not only secure economy, but the danger of explosion will be reduced to a bare possi-

> The returns of British blast furnaces in and out of blast on March 1 show an increase of 10 in the working total since the previous monthly report. Of 918 furnaces built in the United Kingdom, 556 were working and 362 idle, against 546 working and 372 idle last month, and 575 working and 350 idle on March 1, 1882.

> Considerable interest is centered in the experiments and negotiations now in progss in Scotland, with the view of adopting

The Iron Age

Metallurgical Review.

New York, Thursday, March 29, 1883.

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square (12 lines, one inch), one insertion, \$2.50; nonth, \$7.50; three months, \$15.00; six months, one year, \$10.00; payable in advance.

BRITISH AGENCY. Office of The Ironmonger, 44s Cannon st., London.

DAVID WILLIAMS, Publisher, 83 Reade Street, New York. PITTSBURGH. 77 Fourth Avenue. Jos. D. Wigner, Manager and Associate Editor. CINCINNATI.55 West Fourth Street, CHATTANOOGA........Eighth and Market Streets, S. B. Lowe, Manager.

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The Steel Trades of Great Britain in 1882. Coke Production of the Census Year. Thirty increase in the finishing department,

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The Labor Situation in the Iron Works.

While there are no very decided movements at present manifest in connection with labor in the iron mills-at least, none that make any very decided commotion on the surface of things-it is evident that there is an undercurrent that may have important relations to the future rates of wages of the iron and steel mills of the country. In a number of iron mills in the East reductions have recently been made in the prices of various classes of work. Boiling in Philadelphia has of course come down, in accordance RATES OF SUBSCRIPTION, with the sliding scale in force there, to the rate properly fixed by the present card on iron, which would make boiling, we believe, \$4.30 a ton, but it is evident that the rate will not stay here long, as the selling price of into the details of these, it may be said that the price of boiling in the East at the present time is from \$3.50 to \$4.30, the latter rate ruling in Philadelphia, and the former at a number of mills in the interior of Pennsylvania and in some parts of New York, New Jersey and New England. These reductions have been made without any serious friction. The men have been convinced that the condition of trade demanded it, and have accepted the situation without trouble. In the West there has been no change in

the price of boiling or the wages of other skilled labor in the iron mills, as, indeed, there could not be under the agreement entered into at the close of the strike, which remains in force until the 1st of June. For some weeks past, however, the various meetings preliminary to the scale convention, which under the rules of the Amalgamated Association meets on Saturday, April 7th, have been held in the West, and though these meetings are generally held to be confidential, enough has leaked out regarding their action to indicate that there is considerable unrest in the ranks of labor in the iron mills over various matters. It is reported, in the first place, that the feeling ngendered by the last strike between the forge department and the finishing department is by no means allayed. It is alleged that a number of meetings have been held with a view to reorganizing the United Sons of Vulcan, which was a boilers' organization, and that at a meeting held on last Saturday or Sunday, at or near Pittsburgh, at which 85 delegates, representing seven States, were present, it was decided to reorganize the old ssociation, though the time for doing this and for withdrawing from the Amalgamated was a matter to be determined by future circumstances. Some of the officers of the Amalgamated Association deny this, but they have denied so many things that after events have shown true that something more than

It is also reported that the finishers especially the sheet rollers, are agitat-ing for a change of the basis of wages for their class of work. All scales are at present based on a 21/2 cent card for bar iron. It is proposed to base the eard for rolling plate and sheet iron on some size of plate or sheet iron, the result being an advance of about 15 per cent. It is also stated Beventh Page.—The Bank of England (Concluded). The Industries of New York. Trades for year for a scale will just on their demand this year. These various matters have been brought up at the different meetings held in connection with the organization of the scale convention. Whether all of these demands or any of them will be adopted by the association remains to be seen. It is believed, however, that the forge Thirteenth Page,-Belt Clamp. Mineral Wealth department and a large number of those in onnection with the finishing department favor adherence to the old scale, and it seems Fourteenth Page.—The Labor Situation in favor adherence to the old scale, and it seems the Iron Works. Pig Iron and Ore in the West. evident that should the finishers succeed in The getting the scale convention to demand an would result in the immediate disruption of Fifteenth Page.—Thirty Years of Progress the Amalgamated Association. In the mean-time, a number of disputes in connection with labor in the West that have been unsettled for some time past, and others that have cal report of the British Iron Trade Associa-Twenty-second Page. General Hardware and counter offers, was first refused and with that of 1881 on 1880, we find it to be cent., and Indiana, 0.04 per cent.

will be in operation. ning single turn non-union, and in a few duction of Bessemer steel ingots in each In the manufacture of this coke 4,360,110 The iron foundries of the country present

Of course they will put the day off as long as those that are paid in the East.

Pig Iron and Ore in the West.

While perhaps there has not been what would be called a marked improvement in the pig-iron market in the West within the past few weeks, it certainly is a fact that in some districts of that section the market is considerably firmer and prices have somewhat advanced. This has been due largely to the unsettled state of the ore market and the doubt as to what would really be done about ore for next year's delivery. In view of the fact that at one time it seemed unlikely that the ore producers in their offers would come near meeting the views of the consumers, a great many furnaces had determined to use up what stock they had on hand and then blow out. A number have already done this, and we are of the impression that our April statement of furnaces in and out of blast will show a considerable reduction from the list published for the 1st of January. On some grades of ore, however, the ore men have fixed their price. Republic ore, we believe, is held at \$8 for the furnaces, or at least we have been informed that the Republic Co. have offered ore at \$8 to certain furnaces. This is a reduction of \$2 a ton from the price ruling last year, or a reduction of 20 per cent. It is, however, by no means a reduction proportionate to that in the price of pig iron. There are a number of ores that in their prices bear a certain relation to the Republic. Some command as high a price, but others 25 to 50 cents a ton less. These ores will bear the same relation to the Republic they have heretofore. It is probable, however, that some of the lower-grade ores will not bear the same relative price to these better ores that they have in years past, though what the asking price of these cheaper ores will be we do not know at present. The ore men assert that the prices named

are the lowest that they will take; that they are determined not to work their mines and take the ore out of the ground unless they can get a reasonable profit on it. This some miners has been fixed at \$1 a ton. It is evident, however, that with the prospect before the pig-iron men, \$8 to \$3.50 a ton for Republic ore, and other ores in proportion, is more than they can afford to pay. The Bessemer men in years past have virtually fixed the price of ore by their readiness to contract early in the season for the ore they needed at almost any price that the producers demanded. This year they have not been so quick. The profits do not promise to be so large, and they cannot afford to pay any asking price. The Western pigiron men in the past have shown a readiness to accommodate themselves to the circumstances that would indicate that there will not be much of an overproduction. Most of the furnaces that make iron for the general market, unlike many of the furnaces in the East, buy all their materials, or, in a word, only own the furnace-stack and surroundings. The stoppage of work only "lays idle" the capital invested in the furnace plant, and not capital locked up in ore and oal mines, and all the discounts that have to be provided for are those which the furnace business have made necessary. this and other reasons it has happened that the Western furnaces have shown, by their blowing out, a readier yielding to the condition of affairs than the Eastern furnaces, and it is probable, if the present circumstances continue, that the number of furnaces even now in blast will not long remain

The Steel Trades of Great Britain in 1882.

At the Vulcau, where a similar state of af- against an advance in the latter year of the coke of Pennsylvania being on the

The average output per converter increased making a total of 12,261 built and building. from 17,582 tons in 1881 to 20,920 tons in 1882, while in 1879 the average yield per converter was only 12,641 tons. While the converters in work have thus averaged 3336 cons per converter more than in 1881, there is a large amount of variation in the yields obtained in the different districts. The best result obtained at individual works was 8,202 tons, with two converters-an average of 39,101 tons per converter, while at another works the average yield per converter amounted to 31,178 tons. The former is believed to be the best record that has yet been made in Great Britain in Bessemer

The total quantity of Bessemer steel plates turned out in 1882 was 33,500 tons, against 21,989 tons in 1881 and 21,500 tous in 1880. Of the 23 works engaged in producing steel of this description, nine turned out in 1882 quantities of plates varying from 10,000 to 14,000 tons. The total quantity of blooms produced was over 130,000 tons.

As to the production of open-hearth steel 1882, returns obtained from the steel werks, and verified by Dr. Siemens, show the production last year to have been 436. 000 tons, against a production of 338,000 tons in the preceding year. This figure is an increase of 98,000 tons, or 29 per cent. on the production of 1881, which in its turn was an increase of 87,000 tons, or 34.6 per cent. on the production of 1880. Within the last two years, therefore, the production of openhearth steel has increased by 185,000 tons, a quantity which is 10,000 tons in excess of the whole production of the country in 1879. The figures for the individual districts show that during 1882 Scotland more than doubled its production of open-hearth steel, this being attributed to the demand on the spot for open-hearth steel plates, of which more than 150,000 tons were produced during the year. The total output of both Bessemer and open-hearth steel in 1882 was 2,109,649 tons, while in 1879 the corresponding production was only 1,009,511 tons. Within four years, therefore, the production of these two descriptions of steel has more than doubled in Great Britain. The number of firms actually engaged in the produc-tion of open-hearth steel in the United Kingdom during each of the last three years was 20 firms, 27 firms and 35 firms respectively. At the end of each of the last three years the number of open-hearth furnaces erected was 120, 149 and 163 respectively, and the average annual production of the furnaces actually at work during each of the three years was 2540, 2925 and 3114 tons.

The Coke Production of the Census Year.

From the "Compendium of the Census," which has just been distributed, we obtain the figures given in another column, showing the statisties of the coke manufacture during the census year, as gathered by the special agent in charge, Mr. Joseph D. Weeks. This s, we believe, the first attempt ever made in this country to gather the statistics of this industry, and the report accompanying the same is the first attempt ever made to bring together the facts regarding coke, or, in other words, it is the first work of any reneral character ever published on coke, Percy's chapter in his recent work on Fuel" being the most complete ever before published. In addition to the statistics of coke in this country, Mr. Weeks enters quite fully into the history and technology of oke, not only in this country, but abroad. The question of ovens is discussed at some length, and the subject of the utilization of by-products, which is receiving so much attention abroad, is discussed very fully, The advance sheets of the annual statisti- and the latest phases of the subject given.

From the figures given it appears that the lately begun, have either been ended or are tion, just received, form an interesting and total product was 2,752,475 tons of coke. As Nineteenth Page. Scientific and Technical. in a fair way of being closed. The trouble valuable contribution to the history of Brit- was well known, Pennsylvania is by far the Explosions in 1882. Trade Publications. Size and manufacturers. It will be remembered that the entire Kingdom in 1882 was 1,673,649 made 3.98 per cent.; West Virginia, 3.48

Forty-accond Page.—Boston Hardware and Metal Prices.

Most intelligent men in the Amalgamated works in operation during 1882 is concerned, 63.1 per cent. The yield in Pennsylvania in 1880. This shows very great growth in Association recognize the necessity of this. the report gives it as the same as in the was 62.4 per cent, in Ohio 56.4, and in West the number of establishments, especially in

preceding year-namely, 23, one new estab- Virginia 64.4. The total number of empossible, and, if they think it possible to make a successful stand against the reduction, will do so. But it seems almost useless other company discontinued the manufacture a ton of coke 43 1/2 cents. This does not to expect that the manufacturers of Pitts- altogether. The number of converters in include the wages paid in moving the coal, burgh will continue paying the great ad work during the year was 80, or two less but only those paid from the delivery of the vance in puddling and other wages over than in 1881, while 24 were idle—this being coal at the oven until it is loaded upon the three less than in 1881-and ten, or four less cars. There were 10,176 ovens built at the than in 1881, were in course of construction. close of the census year, and 2085 building,

Thirty Years of Progress.

The recent issue of the "Compendium of the Tenth Census" calls fresh attention to the remarkable industrial development of the United States. In the decade between 1870 and 1880 the manufactures of this country increased with such rapidity that, as nearly as can be ascertained from the census figures, the value of the manufactured products in the year 1880 exceeded the value of the products of agriculture. The farming interest is, therefore, no longer the preponderating industrial interest which it was up to a very recent period.

The wonderful expansion of the great branches of manufacturing industry in re cent years is largely owing to the stimulus imparted by the building of thousands of miles of railroads; the demand for railroad equipment; the accession of hosts of immigrants who had to be clothed and fed, and supplied with all kinds of utensils and implements; the settlement of great areas of new territory; the abundance of money and onsequent reasonable rates of interest, and the complete freedom of our people from any sort of internal or external political complications, which always interfere with material progress. The figures collected by the Census Office, many of which are for the first time made public through the Compendium, are the best standard we have by which to measure the great advance which has been made in manufactures. We are fortunately able to go back as far as 1850 and show the very striking difference between the condition of the manufacturing industries then and in 1880. Some of the leading manufacturing industries, such as the iron and steel interest, collect and publish their statistics of production from year to year, and these statistics to some extent displace the census statistics and divest them of their prominence, but in comparing details and in ascertaining decernial progress the census figures are all-important.

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An investigation of the census statistics of the iron and steel trades from the seventh census, that of 1850, shows that marvelous progress has been made in the thirty years which had clapsed between that date and 1880. This is not apparent, however, in comparing the number of establishments, as there were 821 concerns making pig iron forged and rolled iron and steel in 1850, against 1005 in 1880; but it must be remembered that in 1850 the establishments were small and embraced many charcoal furnaces and bloomaries, whose places have since been taken by large coke and anthracite furnaces and extensive rolling mills. When the number of hands employed is considered, the advance made is very strikingly shown, as in 1850 only 32,083 were enumerated, against 140,978 in 1880. The capital invested in 1850 was only \$31,130,436, against \$230,971,884 in 1880. The wages paid in 1850 amounted to only \$8,686,204, against \$55,476,785 in 1880. The value of the products in 1850 was only \$28,859,593, against \$296,557,685 in 1880. These facts and a few others are suc-

cinctly shown in the following table, in which the figures for 1860 and 1870 are inserted, in order to mark the progress made in intervening decades:

	1850.	28co.
Establishments	821	723
Hands employed	32,083	38,845
('apital invested	\$31,732,436	\$49.759,047
Wages paid	8,686,204	82,330.532
Value of materials	16,830,364	34,219,424
Value of products	28 859,593	50,100,001
Total product, met tons.	Not given.	Not given.
	1870.	388a.
Establishments	808	1,005
Hands employed	75.037	140,078
Capital invested	\$121,772 074	\$230,978 884
Wages paid	40,514,981	55,476,785
Value of materials	145.526,132	801.271,150
Value of products	207,208,196	206,557,685
Total product, net tons.	2.655.215	7.205.140

From the above figures we have ascertained at the Joliet mill has been settled by the ish metallurgy. Inspection shows that the largest producer, producing 84.18 per cent. that in 1850 the average number of hands emworkmen yielding to the demands of the total production of Bessemer steel ingots in of the total make; Ohio, which came next, ployed in each establishment was a little over 36, against over 140 in 1880, indicating that the late last year the manufacturers made a tons, representing an increase of 231,930 per cent.; Tennessee, 3.33 per cent.; Geor- iron works of 1850 were very small concerns, demand for 20 per cent. reduction in the tons, as compared with the production of the gia, 2.54 per cent.; Alabama, 1.53 per cent.; when compared with their successors after a steel-rail mills, which, after some discussion previous year. Comparing this increase Colorado, 0.65 per cont.; Illinois, 0.27 per lapse of 30 years. The average value of the The product per single hand employed in 1850 (Concluded, Iron. Metals, Old Metals, Paper Stock, &2. Coal. Exports. Imports. Foreign meantime the price of rails had gone down ing been the greatest advance made in any course, Fayette County, Pa., in the Connellswas only \$001, against \$2,103 in 1880, demonso much that the manufacturers demanded one year in the history of the trade. The ville region, followed in order by Westmore- ods employed in 1880, even if allowance is 33% per cent. This was conceded at Joliet production of Bessemer steel rails during land, Blair and Allegheny, in the same State. made for some products of high value turned last week, and the mill either is now or soon 1882 amounted to 1,235,785 tons, an increase The average value of the coke produced out in 1880 which were of a kind not produced af 212,045 tons on the production of 1881, was a little over \$1.94 a ton of 2000 pounds, in this country in 1850. The average wages earned per hand employed in 1850 was only The Wire Red Duty. A fairs existed, attempts are being made to run 1880, which is rake." Waste of Fuel in the mill non-union. At Springfield, Ill., the total quantity of ingots produced in orado the highest, \$5. It will, of course, be another very strong point of superiority of New York from and Metal Exchange. manufacture of rails having been abandoned 1882, 74 per cent. were manufactured into understood that the price does not indicate the latter period over the former. If any and a merchant-steel mill substituted in its rails, against 70 per cent. in each of the two the quality of the coke, but the relations of further demonstration of the smallness of The uty-size the proprietors determined to run place, the proprietors determined to run place, the proprietors determined to run the different cokes to supply and demand, non-union. No trouble was experienced for the proportion of rails to ingots was 4 per the price of a coke really depending, as a would be found in the fact that at that time two weeks, when the union men in the other cent. more than in either of the two pre-rule, upon the price at which Connellsville the average capital invested in such works Thirty-fourth Page. - New York Wholesale departments struck. The mill is now run-ceding years. Detailed statistics of the pro-coke can be laid down in competition with it. was only \$37,918, against \$230,817 in 1880.

Thirty fifth Page .- New York Wholesale days will probably run double turn. Stren- district of the United Kingdom and in each tons of coal, valued at \$2,761,657, were used. an equally interesting field of comparison uous efforts are being made to settle all these of the two last years show that the largest This would be 1.57 tons of coal, valued at between 1850 and 1880 to that above drawn Thereg-sizeth Page.—New York Wholesale differences. It seems evident that there quantities of ingots were turned out in South 63.3 cents a ton, to a ton of coke—or the for the manufactures of pig iron, forged and The section of wages in the iron Wales and Sheffield.

Forty-first Page.—Philadelphia and Pittsburgh mills of the West in the near future. The So far as the number of Bessemer steel \$1,00%. The yield of the coal in coke was 1391 foundries, which had increased to 3450 416,361 in 1850 to \$87,852,649 in 1880. was a great advance on 1850, for in that year the average capital invested in each establishment was only \$12,520, while in 1880 it was, \$25,464. The wages paid in 1850 amounted to only \$7,076,700, against \$37,486,689 in 1880. The wages for 1880 were very much better than those for 1850. for in the former year the average per hand employed was \$562, against \$300 in 1850. The value of the products turned out in 1850 was only \$25,108,155, against \$159,749,149 in 1880. This shows that the workmen of 1880 were worthy of their increased wages over their predecessors of 1850, for the average product per hand in the former year was \$2395, against only \$1064 in 1850.

The discovery of an error in the rates on hoop iron, as published in the tariff bill furnished by the Treasury Department to the collectors, occasioned last week considerable commotion among those interested. The provision in the conference committee report on hoop, band, scroll and other iron thinner than No. 10 and not thinner than No. 20 wire gauge was I.2 cents per pound. In the edition of the bill referred to above, the provision read "thinner than No. 10 wire gauge, and not thinner than No. 20 wire gauge, rate one and two-"tenths of one per cent. per pound;" or, in other words, while the conference committee's report levied a duty of 1.2 cents per pound on hoop iron from No. 10 to No. 20, in the bill as published, a duty of 1.2 per cent. per pound was levied. The wording of the bill, as published at the department, eems to have been a typographical error, but if it had not been and had been an error in transcribing the bill, so that the true wording would have been 1.2 per cent. per pound, it would be difficult to see how the law could have been applied. What 1.2 cen's per pound is, or what 1.2 of 1 per ad valorem is, can easily be ascertained, but what rate of duty 1.2 of 1 per cent. per pound is would puzzle the ingenuity of some of the most ingenious interpreters of

Canadians manifest a chronic uneasiness with reference to the existing trade relations with the United States. Last week a motion was carried in the Dominion Parliament calling for any correspondence that may have taken place between Canada and the United States respecting reciprocal trade. It was urged by the mover of the resolution that a treaty was necessary, in rder to obtain an outlet for merchandise which is being produced beyond the demands for home consumption. Canadians would undoubtedly prefer that overtures for a treaty come from the other side, but they are something like the rooster picking up oats in the horse's manger, and who said: Let us be careful and not tread on each other." At the same time, if they are careful that the American eagle shall not tread n them, neither are they disposed to be trampled all over by the British lion. It is galling to them to be compelled to communicate with Washington only through the British Foreign Office, knowing full well that the interests of the Dominion, so far as they relate to trade, are sure to be kept subordinate to those of the manufacturer in "the other country." Their leading strings are kept too tight for comfort, especially where the development of local industries is con-

of the best high-speed engines built the present time there is a notable falling If in pressure during the stroke, and when off at anywhere from one-quarter to half, the initial pressure usually varies my pounds. The higher the speed, of course, rse this is, and in the locomotive the oint of cut-off is sometimes ascertained with fliculty. Theoretically, the port opening to increase in proportion to the in Teased speed of the piston, and when the on is moving the fastest the port ought have the greatest area. With the eccentric this impossible, but the question comes up, the eccentric the best means of moving a the right time and to the right distance, and There would be ong over the ports with a full pressure of eached, the steam valve can be opened hen the pressure on both sides is practithen this valve is closed, nearly the same the cylinder, and the same conditions will

comparison with the other works above re- must be reduced to a minimum, and will be ferred to, but foundries are more easily built less than in the best balanced valves. Lookthan blast furnaces and rolling mills are, ing about at the most successful engines in they require much less capital for their the country, we find this principle has been ation, and they are generally built to do very closely adhered to, and even some en local work. The hands employed increased gines that are supposed to be not quite up to from 23,589 in 1850 to 63,702 in 1880. The average number of hands employed in each own and produced surprisingly good results, establishment varied but little at the two and, if examination be made, the economy dates, being 17 in 1850, against 19 in 1880. can be traced in a very considerable degree The capital invested increased from \$17,- to the clever use of four valves instead of

> A good deal of interest has been expressed recently in the reversed blue process, by which blue lines are obtained on a white ground in copying tracings. Many efforts have been directed toward attaining this result, and several processes are in the market. Most of them are expensive and said to require a considerable extra amount of labor. The process of obtaining brown or gray lines on a white ground, while more easily obtained, has the disadvantage, we believe, of being a trade secret and done to order. When any attempt is made to go beyond the simple blue process, the amount of photographic and chemical knowledge needed, in addition to a considerable amount of skill in manipulation, is usually too great for the ordinary draftsman. Very few of them have either the time or the inclination to read up on the subject and experiment sufficiently to achieve success. The cost of learning the trade, and the greater cost of practicing it afterward, together with its uncertainties and the effect that the blue lines on the white ground are not as clear or as durable in the shop as the common blue print, are sufficient reasons for adhering to the present plan.

Portugal is making a strenuous effort to secure from the United States a full representation of agricultural implements at the exhibition to be held in Lisbon in May next. A dispatch from Mr. Francis, the American Minister, says the King will preside, assisted by a body of men representing the best intelligence and ability of the realm. Liberal inducements are offered to inventors, but we merated and made dutiable at various specinotice that some misgivings are expressed lest advantage be taken of their skill without reciprocal benefits.

American Steam Yachts.

Steam yachts in America during the past steam yacuts in America during the past few years have been vastly increased in size and fitted with materially improved ma-chinery. Speed has been the objective point in the construction of these boats, and builders of hulls, as well as engineers, have taxed their ingenuity severely to that end. The Stranger and Corsair, of the New York Club, followed by other large vessels of sim-ilar type, marked the beginning of the improved steam yacht in this country. True, many boats undeserving the appellation of steam yachts were to be found on the lists of proved some yacht clubs for years before, but they were of indifferent account and only fit for inland waters. Specialists are now design-ing this type of pleasure craft, and size, power, rig and accommodations are being looked after with a nicety of detail which means that in the near future the fleet of American steam yachts may be pointed to with pride. The cruising steam yacht, containing all the conveniences of a home, and oped state it was a few years ago, and the number of new boats of an improved type which will be seen during the coming scanson justifies the belief that the days of worthss steam toys have passed, and the ill-

replaced by productions by naval architects of established reputation, fit for any service.

The construction of yacht boilers of steel by American builders shows that the improvements made in this important particular in England have not passed unnoticed in this country. Again, though the hulls of our large steam yachts are iron, there is considerable discussion in organosius visuales. considerable discussion in engineering circles regarding the use of steel for yacht-building. The construction of steel yachts in Europe has demonstrated that the nature and uses of that material for this purpose are well un derstood. Many advantages are claimed for steel in its adaptation for plates and frames of yachts, and it is not unlikely that some wealthy gentleman in this country may think it best to build a steel steam yacht at no distant day.

The nominal horse-power of an engine can scarcely be said to have any definite meaning, since there are a number of rules by which it may be computed. In addition to these, numerous engine builders have what may be called proprietary rules. For instance, one builder may say: "I will make instance, one builder may say: "I will make a steam engine with a cylinder 10 inches in

WASHINGTON LETTER.

(From Our Own Correspondent.) WASHINGTON, D. C., March 27, 1883. AN OFFICIAL VIEW OF THE TARIFF.

It has been observed by a no less responsible authority than an official paper, that "the changes in the proposed tariff bills which have been complained of as introducing largely elements of uncertainty as to results, were regarded and intended by the Tariff Commission as measures of tariff reform, and the Ways and Means Committee, in the bill submitted by them, appear to have adopted the same view." This appears to be the general view of the subject by all concerned, and the amount of inquiries by attorneys and letters is heaping upon the Treasury Department a vast amount of labor in the way of interpretation of this hasty act of legislation. The chief difficulty in the way of preparing a statement of the actual and average reductions made by the new bill, as compared with the old, and a comparison of the relative workings of the two, is the differences introduced in the classifica-tion of merchandise. Besides, the uncertainties of the "not otherwise provided for" classes of merchandise hitherto recognized recognized under the present law, and the specification of those articles under the new, add to the complications. Besides, with respect "to imported articles invoiced at in foreign countries, interior points of port charges, commissions, &c., it would be impossible to give the informa-tion desired. From present indications there will be con-iderable groping in the dark until the practical operations of the bill afford some data upon which to base an estimate. A statement of comparative duties and the relation of the Treasury Department to tariff legislation, prepared by the Chief of the Bureau of Statists, affords all the authoritative information at present available.

DIFFICULTIES OF THE TARIFF.

In illustrating the difficulties referred to, Mr. Nimmo says, respecting the metal schedule: "Under the law now in force the duty on steel in any form 'not otherwise provided for' is 30 per cent. ad valorem, and the duties which were collected from this class of imports amounted during the last fixed year to a reason of the last fixed year to be reason. last fiscal year to \$1,723,353.61, but by the terms of the new bill a large proportion of the articles embraced in this class are enumerated and made dutable at various speci-fied rates. Certain of these articles enumer-ated would, in the opinion of the Collector of Customs at New York, be dutiable under the bill at the rate of .3 cent per pound, 34 cent per pound, 2 cents per pound and 2½ cents per pound." The definition as to what shall be regarded as iron or steel will involve certain important changes in the administration of the law.

" NOT OTHERWISE PROVIDED FOR." From the best available data respecting the effect on the revenues from metals, the following information has been computed: The classification of steel not otherwise provided for, it is stated, will doubtless be as follows: The value of imports into the United States for consumption during the fiscal year 1882 was \$5,744,512, dutiable at 30 per cent. ad valorem, on which the duty collected was \$1,723,353.61. Of the imports at New York of steel dutiable at 30 per cent., wire rods constitute about 90 per cent., paying duty equivalent to about .co57 per pound, which are in the bill to be dutiable under Clause 3. Steel rivet, screw, nail, fence and wire rods, round, in coils and loops, not lighter than No. 5 wire gauge and valued at 3½ cents per pound or less, at 6 cent per pound. The remaining 10 per cent, would probably be classed under scrap steel, dutiable at .3 cent per pound. Boiler or other plate, datiable at 1 1/4 cents per pound. Steel axles, able to make a voyage of any reasonable able at 1½ cents per pound. Steel axles, dend the sumption of ceal, is not now in the undeveloped state it was a few years ago, and the advanced to the control of the cent of the plate, duti-able at 1½ cents per pound. Steel axles, detailed at 1½ cents per pound. Steel sumption of ceal, is not now in the undeveloped state it was a few years ago, and the advanced to the cent of the plate, duti-able at 1½ cents per pound. Steel axles, duti-

IMPORTS OF STEEL.

A statement prepared pending the discussion of the metal schedule gives the imports of the class of steel in forms not otherwise provided for. It shows that the imports of this class consist mainly of steel wire rods, amounting in value to \$621,368; dutiable at 30 per cent.; duty collected, \$186,410.20. While the rates are not precisely as finally determined in the act of March 3, 1883, the are sufficiently near to form an approximate idea of the information desired, as follows:

Steel ingots, cogged ingots, blooms and slabs, weighing not less than 500 pounds each. &c., valued above 6 cents and n-t above 10 cents per pound, \$7,040

Total duties... \$352,190.15

The estimated duties, computed upon the The estimated duties, computed upon the basis of imports at the port of Philadelphia, is as follows on metals: Collected, \$30,-589,354: duty computed, \$34,472,047: increase, \$3,882,693. The estimate of the Appraiser places his figures at \$28,479,053 duty

directed that collectors of customs take the duty on the invoice valuation; meanwhile the parties may protest and appeal as per-mitted by law. This defect applies particumitted by law. This defect applies particularly where goods are invoiced free on board at so much gross. As the exact sum of the charges is not named, therefore they cannot be deducted. The department can only take the amounts entered on the invoice. Hence the difference must be settled here. In order to do this, it will first be necessary to get the foreign price, deducting the charges. It is thought that this embarrassing question will be removed as soon as the details of the bill reach the countries from which the imports come. The charges, as above indicated, being removed, the question of assessment of duty will be simple.

THE PUBLICATION OF INFORMATION.

In the class of cases above referrred to, the department has sent telegraphic instruc-tions to the chief customs officers at the principal ports as to their action in the premises. It is intended by the department to issue circulars giving the official interpretation of the provisions of the new tariff act as soon the provisions of the new tariff act as soon as the changes are thoroughly considered and compared. At present the time of the department is largely taken up with answering questions either by telegraph or letter.

ABSTRACT OF OFFICIAL LETTER. The following is the substance of the letter in reply to various questions for decision in connection with the enforcement of Section 7 of the tariff act of March 3, 1883: "I have to state that in view of the fact that the oaths prescribed by Section 2841 of the Revised Statutes, to be taken on entries, have not been medified but represent forces. have not been modified, but remain in force until July 1, such oaths should continue in force until that time and the entries must orrespond thereto. The mere fact, how ver, that invoices and entries include nondutiable charges, does not thereby render such charges liable to duty, and in proper cases the duty should not be levied on the charges and commissions when they can be properly ascertained. Where, however, an nvoice of goods declares that they have been delivered to the purchaser on the exporting vessel free of all charges to him, the value stated in the invoice must be taken as that upon which duties shall be levied, provided, of course, that the appraiser makes no advance thereon. Goods actually remaining in bonded warehouses or public store when the seventh section of the act referred to took effect may be considered as entitled to a readjustment of the duty under said section, without regard to protest, it being the duty of the department and of its officers to en force the law as enacted by Congress. Th department does not deem it wise or within its authority to enlarge the scope of the act so as to extend the provisions of Section 10, in connection with Section 7, to goods not in public store or bonded warehouse when the act took effect, and which were imported prior to that date. Goods imported prior to the act taking effect, and which remain in general order store, are to be considered as in bonded warehouse, and the rule laid down applied accordingly.

COMPILING THE TARIFF ACT.

The officers of the Treasury Department are now engaged in compiling the new tariff act, which will be published as soon as completed. Each paragraph will be numbered, with an alphabetical index referring to the with an alphabetical index referring to the numbers, with the matter so arranged as to indicate the changes in the new, as compared with the old, rates, as far as possible. Out of 800 items in the new bill, one-half are identical with the old. This being the fact, the officers of the department are much encouraged in the opinion that the task of putting the new bill in force will not be as difficult as at first supposed.

THE REVENUES OF THE GOVERNMENT. Since the passage of the new tariff act an estimate has been prepared showing the probable revenues of the Government in view of the reductions made. The figures view of the reductions made. The figures given are as follows: Customs, \$220,000,000; internal revenue, \$143,500,000: miscellaneous, \$40,500,000. Total, \$404,000.000. The revenues for 1883: Customs, \$220,400,000; internal revenue, \$146,500,000: miscellaneous, \$36,618,000. Total, \$403,518,000. It will be observed that, notwithstanding the reductions, the revenues keep up.

METALLURGICAL NOTES.

factory results: The raw or calcined masses of lime, dolomite or magnesite are ground and mixed with the flux, and the mixture is then burnt to dust and worked up into bricks, the binding material being tar treated with 3 per cent. of flux. When the flux is made up of alkaline carbonates, ground calcined phosphate or boneblack, with the addition of a few per cent. of the alka'ine carbonates, are used in the preparation of basic bricks, muffles, &c. The basic masses the ecceptric the best means of moving a stame engine with a cylinder to inches in width by 12 feet a stame engine with a cylinder to inches in width by 12 feet a stame engine with a cylinder to inches in width by 12 feet a stame engine with a cylinder to inches and 1 will call it eight horse-power, nominal. "An other builder who makes an engine of the same size, and by the builder who makes an engine of the same size, and desires to impress purchases with the idea that he gives them more for the same price than his competitors do, may any ever the ports with a full pressure of state that he gives them more for the same price than his competitors do, may any ever the ports with a full pressure of the same price than his competitors do, may any ever the ports with a full pressure of state that he gives them more for the same price than his competitors do and a vacuum underneath." This illustration repressure author, take it that in a properly constructed incurately the capacitous use that is made of the state that in a properly constructed in the pressure on both sides is practically the capacitous when in equilibrium, we compress until boiler pressure is abled, the steam valve can be opened with vary little difference when the stams and the valve balanced. The pressure on both sides is practically the capacitous pressure and that the expression of the pressure of the stams and the valve balanced when the value may be placed upon it.

We understand that a company, known as the compress munit boiler pressure is abled. The value may be placed upon it is described by a method before a dark that the view of converting the pressure on both sides is practically the capacitous pressure is abled. The pressure on both sides is practically the capacitous pressure is abled. The pressure of the pressure is all the pressure on both sides is practically the capacitous pressure is a source of the pressure is a source of the pressure is a source of the pressure is and the pressure of the pressure of the pressure is a source of

without an after-blow by the use of fluorspar equivalent to one-tenth part of the tribasic lime phosphate formed.

The Relative Corrosion of Iron and Steel.

In a recent issue we referred briefly to the experiments on the relative corresion of cast iron, steel and wrought iron, which were made some time since by M. Gruner, and an account of which was submitted to the Paris Academy of Sciences a short time since. We are now in possession of a more complete statement relating to the subject, and think that a brief recapitulation of our former remarks, together with the additional particulars, will be of interest. M. Gruner submitted 18 polished plates of steel and hard and soft iron, pure and impure, of various kinds, to a series of identical experiments. The plates were all one decima 73 inches) square, and in order to submit them to precisely similar experiments they were fixed in a wooden frame. The plates were suspended by their four corners 15 mm. (about 0.6 inch) apart, and could all be plunged simultaneously into a trough con-taining either acidulated water (containing 5 per cent. of sulphuric acid) or sea water. Suitable arrangements were also made so as to enable the operator to place them in moist air on a terrace exposed to all the winds The first experiments were made

The first experiments were made last withter at a factory at St. Montaut, near Do Beauvoir: others during the spring and autumn in Paris, and a nuch greater number during the course of the summer on the seashore at Villervilles, in Normandy, but scasnore at Villervilles, in Normandy, but always with the same series of plates and tho same apparatus. These plates are weighed before and after each experiment, and care-fully brushed and dried. These are the chief results arrived at: The experiments in moist air were not continued a sufficiently long time to enable one to determine whether degree of carburation of the steel, and the moistening of the plate, had any influence or not upon the intensity of the corrosion by rust. It was found, however, that in 20 days the steel lost at least from 3 to 4 grams per plate, the two faces of the plate being equally corroded. Chromium steel, as stated in our former article, was more rapidly oxidized, and Wolfram or tungsten steel less than ordinary steel. Cast iron, even that containing manganese, was found to oxidize less than steel or wrought iron, and among them the white specular cast iron (spiegel), containing 20 per cent. of mangan-ese, less than the gray cast iron. Sea-water attacks iron like acidulated water, by dissolv ing it; but the conditions are entirely dif-ferent. At the end of a very short time the presence of iron chloride is recognized in the trough. Unlike the action in moist air, the sea water more strongly attacks the cast iron than the steel, and, above all others, most energetically the white specular cast Thus, in nine days the steels iron (spiegel). Thus, in nine days the steels had only lost for 0.02 mq. of surface from 1 to 2 grams, according to their nature, while the white manganese cast iron had lost 7 grams; the black cast iron of St. Montant, from the Bessemer works, 3.50 grams, and the phosphatic cast iron, for pottery purposes, 5 grams. Soft steels are less attacked than the same steels annealed; soft steels less than chromic or nealed; soft steels less than chromic or manganesian; Wolfram steel less than ordinary steel, with the same percentage of com-

bined carbon.

It follows from this that it is necessary to avoid the employment of manganese sheet steel in the hulls of ships, and, according to experience, corrosion is much more active along the line of flotation than where the metal is always in the air or always under water. Acidulated water, like sea water, dissolves more rapidly the gray cast irons than steel, but not the white specular cast iron—spiegel. It is the impure gray cast iron which is the most readily attacked. Thus, in three days, water containing ½ per cent of sulphuric acid, renewed each morning, dissolved the following quantities

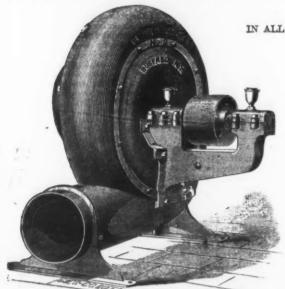
0.8 That is to say, much more than the white specular cast and the cast iron obtained with charcoal. It is found by these experiments Hasic Furnace Linings.

According to a paper submitted in a recent more energetically chromic steel than pure

According to a paper submitted in a recent issue of Dingler's Polytechniches Journal, it appears that the carbonates of soda and potash are used, instead of the corresponding chlorides of those metals, for the purpose of making basic-furnace linings for dephosphorizing pig iron, and that the durability of such linings is increased by the addition of eryolite. The following method of preparing the lining has been found to give very satisfactory results: The raw or calcined masses of line, dolomite or magnesite are ground

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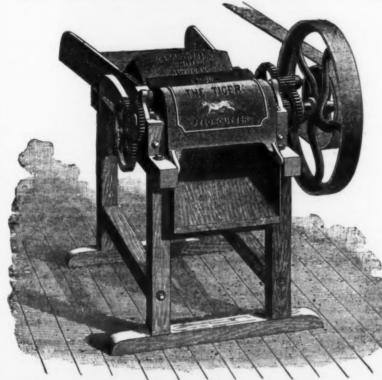
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WITH PATENT ADJUSTABLE ATTACHMENT. The only Saw that can be adjusted for either a One-Man or a Two-Man Saw We make the following lengths, 3½, 4, 4½, 5 feet. Send for sample.

WHEELER, MADDEN & CLEMSON MFG. CO., Middletown, N. Y.

IMPROVED UNDER PATENTS OF 1875 AND 1876.

Safety, Economy in Fuel, Low Cost of Maintenance, Dry Steam without Superheating, Large Reserve Power ARE THE ADVANTAGES OFFERED BY THIS BOILER IN A PRE-EMINENT DEGREE,

3000 Horse-Power in Progress and for Immediate Delivery. Correspondence Solicited.

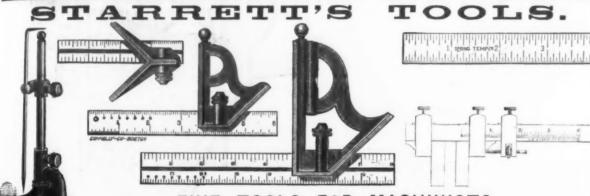
EDGE MOOR IRON COMPANY,

SOLE LICENSEE AND MANUFACTURER FOR THE UNITED STATES,

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FINE TOOLS FOR MACHINISTS.

GOODS WARRANTED, TRADE SOLICITED AND SATISFACTION GUARANTEED.

CAUTION.—In the Circuit Court of the United States, District of Massachusetts,
January 31, 1883, Judge Lowell rendered a decision in the suit brought by L. S. Starrett, of
Athol, State of Massachusetts, against The Standard Tool Co. and the Athol Machine
Co. for infringing his patented squares, fraudulently stamping and advertising them as
Chaplin's Patent.

The court evertising Mr. Starrett, protents and delegate the passage of a Co. for infringing his patented squares, fraudulently stamping and advertising them as Chaplin's Patent. The court sustained Mr. Starrett's patents, and declared them infringed. An injunction was ordered against all the defendants. I hereby give notice that I shall hold all persons responsible who use or sell any infringement on my squares.

L. S. STARRETT, Athol. Mass.

PERRY'S PATENT REPAIR LINKS.

PERRY'S PATENT REPAIR LINKS.

POPE & STEVENS.

MANUFACTURERS OF



GILT CHAIN, CELLULOID, CHAIN, EMBOSSED.

COLLARS.

DOG MUZZLES, ROLLER SKATES, &c.

HEADQUARTERS OF

C. S. OSBORNE & CO.'S CELEBRATED TOOLS, BARNEY & BERRY'S SKATES,

CHICOPEE AUTOMATIC DRILL.

114 Chambers Street,

NEW YORK.

Post's Waterproof Belt Oil and Leather Preservative LEATHER BELTING

Leather dressed with this oil will not crack or rot, as heat, cold, water or gas has no effect on it. It will a spread one-third further and least much donger than any oil for the same purposes. It never turns mancid; will keep in any chimate.



Belts may be rur in water at one end and a hot room at the other, and still be soft, dry and pliable. Warranted not o start glue laps ARK. or gum on belts or

E. L. POST & CO., No. 10 Peck Slip, N. Y., SOLE MANUFACTURERS.

AGENCIES IN THE UNITED STATES:

J. Le Roy Pine, Troy, N. Y.

Jas. H. Rdlington & Co., Phila., Pa.
Brown Bros. & Co., Providence,
B. L.

Davenport, Johnson & Co., At

S. C.

E. B. Preston & Co., Chicago. Ill
C. E. James, Chattanooga, Tenn
C. B. Choate. East Saginaw, Mich
Cameron & Barkley, Charleston
S. C. Minn.

\$\frac{1}{2} \times Co., Cincinna.

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Davenport, Johnson & Co., At lands, General Action of Co., At lands of Co., Eal-Mass.

J. Ashton & Son, Trenton, N. J., Geo. A. Smith, Richmend, Va.
W. H. Dillingham & Co., Louis-ville, Ey.

F. Fladford & Co., Clacinust, Ohio.

SCOTLAND: Robert Balderston, Glasgow."

PERRY'S PATENT REPAIR LINKS.





No. 1, for repairing Small Trace Chain, per dozen, 50c. No. 2, for repairing Medium-Size Chain, per dozen, \$1.00. No. 3, for repairing Log Chain, per dozen, \$2.00.

Small Gray Iron Castings, General Hardware, &c., &c.



ERIDGEPORT. CONN. PATJULY 8 1979. JUNE 22 1880.

HEATHFIELD, EYRE & CO. 158 Leadenhall Street, LONDON, ENGLAND.

DANGERFIELD'S IGNITING MATE

Difficulties in Early Railroad Building.

In the early days of railroads, mechanical and engineering problems were by no means the most difficult to be overcome. The early projectors often found quite as much difficulty in meeting the opposition of the people as they did the mechanical difficulties which presented themselves. The late Josiah Quincy has left some particulars in regard to this, and from a chapter devoted to this particular phase of railroad building we take the following:

Perhaps the most singular phenomenon in the history of each railroad was the bitter opposition they encountered from leading opposition they encountered from leading men whose convenience and pecuniary interests they were directly to promote. The believer in railroads was not only to do the work and pay the bills for the advantage of his short-sighted neighbor, but, as Shakespeare happily phrases it, "Cringe and sue for leave to do him good." Can I furnish proof of this incredible statement? Yes, I have it before me at this moment, and it is worth giving with some detail.

worth giving with some detail.

The old town of Dorchester, which some cears ago was annexed to Boston, has within worth giving with some detail.

The old town of Dorchester, which some years ago was annexed to Boston, has within its ancient limits nine railroad stations, and at those most frequented about 50 trains stop daily. The main road, known as the Old Colony, passes over a route which I caused to be surveyed at my own expense, with the view of providing cheap transportation from the towns of Dorchester and Quincy and others to the south of them. I need not say that the land made accessible by this railroad has become very valuable, and that the business and population of the old town of Dorchester cluster about the stations. If any be surveyed at my own expense, with the view of providing cheap transportation from the towns of Dorchester and Quincy and others to the south of them. I need not say that the land made accessible by this railroad has become very valuable, and that the business and population of the old town of Dorchester cluster about the stations. If any tyrant could tear up those tracks and prevent them from being relaid, his action would paralyze a prosperous community, and might well be called a calamity by those most careful in weighing their words. Now, can the reader believe that the very words I have italicized were chosen so late words I have italicized were chosen so late as 1842 by the inhabitants of the town of Dorchester, in regular town meeting as-sembled, to express their sense of the injury that would result to them and their posses-

property which will also be involved. A great portion of the road will lead through thickly settled and populous parts of the town, crossing and running contiguous to public highways, and thereby making a permanent obstruction to the free intercourse of our citizens, and creating great and enduring hazard to all travel upon the common roads." The second resolution declares that if, in spite of the protest of the inhabitants II, in spite of the protest of the inhabitants of Dorchester, their town must be blighted by a railroad, "it shall be located upon the marshes and over creeks," and by thus avoiding all human habitations and business resorts, "a less sacrifice will be made of private property and a much less injury indicted upon the town and public generally." inflicted upon the town and public generally."
The concluding resolution is one of those jewels (rather more than five words long)

that must suffer by any curtailment:
"Resolved, That our representatives be instructed to use their utnet endeavors to prevent, if possible, so great a calamity to our town as must be the location of any railroad through it, and if that cannot be pre-vented, to diminish this calamity as far as possible by contining the location to the route

ST. LOUIS MALLEABLE IRON CO.,
2116 Market St., ST. LOUIS, MO.,

MANUFACTURERS OF

REFINED MALLEABLE IRON CASTINGS,

ALL KINDS CF

Small Gray Iron Castings, General Hardware, &c., &c. FEED WATER HEATER & PURIFIER,

you

Heating and Puri
Water And Purifier of Christian Content of Christian inhabitants of Christian Content of Christian Content of Christian C Heating and Puri- the town of Quincy who are petitioning for

lic or private interests most seriously affected. Look at the rapid growth of Neponset vil-lage, through which this contemplated road is to run (the citizens of which are as enterprising and active as can be found, many of whom have invested their all either in trade,

the wreck of an entire community we can spare no tears for the woes of a single tavern-keeper. The ruins of that once prosper-ous village of Neponset are even to this day visited by reflective tourists. I think I men-tioned that the Old Colony Co. have a way of stopping some 50 trains there in order to ac-comodate moralists who take a melancholy satisfaction in musing among them.

The Moniteur Industriel describes a new siege gun recently constructed for the French Government as being 29 feet 6 inches long, weighing 50 tons and costing about \$120,000.

At Senegal, Africa, the fit IRON, TIN PLATE AND METAL

It is of steel, with 10 wire coils, the wire has just made its appearance, while the first being .04 inch in diameter. The shell weighs as just made its appearance, while the first being .04 inch in diameter. The shell weighs as just made its appearance, while the first being .04 inch in diameter. The shell weighs in just made its appearance, while the first being .04 inch in diameter. The shell weighs in just made its appearance, while the first being .04 inch in diameter. The shell weighs in just made its appearance, while the first becometive. At Senegal, Africa, the first becometive has just made its appearance, while the first becometive has just made its appearance while the first becometive has just made its appearance. The shell weighs in just made its appearance while the first becometive and its appearance in the first becometive and it

NEW=PUBLICATIONS.

Practical Mzchanics. By John Perry, M. E. 256 pages; size, 4½ x 7 inches. Price, \$1.50. Pub-lished by Cassell, Petter & Galpin.

This little work commences with an introductory paragraph which is exceedingly prepossessing. It is devoted to "What I expect the reader to know already." As the book is a very practical one and may be of value to many of our readers, we can hardly do better than to state what this necessary knowledge is. In the first place, the reader is expected to know the meaning of decimals in arithmetic. The next thing is that the reader must not only own a box of drawing instruments, but must be able to set off any angle when stated in degrees, and draw a triangle to scale when one side and two angles, two sides and one angle, or when three angles, are given. In other words, there must be about as much knowledge of a box of drawing instruments and their use as can be learned in a single lesson. Third, he must know that a letter of the alphabet or any other symbol may be used to repre-sent a physical magnitude. Lastly, the symwhat every mechanic has or ought to have. Not having yet had time to go through the work thoroughly, we do not know how well the author has kept the promise of the opening chapter, save from hasty glances here and there. These, however, are eminently satisfactory, and we put the book upon our shelves with the feeling that we have something that can be recommended to the apprentice or the uneducated man at the bench as well as the more advanced student, even as well as the more advanced student, even though they be somewhat afraid of algebra.

EXTRACTS FROM CHORDAL'S LETTERS. By Chordal, 356 pages; 5 x 75 inches. Steel portrait of author, and many illustrations. Price, \$2. Published by John Wiley & Sons.

We suppose everybody knows Chordal, or at least has read "extracts" from his letters. They run from grave to gay, and cover almost every topic which has entered into the minds of engineers or mechanics. Chordal has given literature a couple of characters. True, they are not particularly well defined, nor has he written us a story of their lives, but in the minds of his readers they are as but in the minds of his readers they are as real and living personages as any that have been created by Dickens or Thackersy. In fact, everybody knows Wycoff and Sackett. They are found the land over where machine shops exists. The wit, the plain, hard common sense, the fresh way of looking at things—and, in fact, everything about the book—make it one of those which the practical man picks up for both recreation and book—make it one of those which the practical man picks up for both recreation and profit at many an odd moment. The present edition has been enlarged, and 75 pages of additional matter inserted. The engravings are also more numerous than in the first

Proceedings of the American Association for the Advancement of Science,

We have just received Volume XXX of the above proceedings, which, as in former years, embraces a large amount of interesting and valuable information. It gives a complete account of the 30th, meeting, held at Cincinnati, Ohio, and its careful perusal cannot but be of value to the reader. The volume is finished in a paper cover, and contains some 424 pages.

Proceedings of the Society of Arts. Massachusetts Institute of Technology. Size, 6 by 6 inches; 146 pages,

This is an abstract of the proceedings for the twentieth year, and embraces meetings from the 271st to the 287th inclusive. It is full of good things, and the only protest one has to make is that the descriptions and discussions have not been given at greater length. The subjects cover a very wide range and embrace almost everything of a scientific character. The last 30 or 40 pages are devoted to Professor Lanza's reports on 'Full Size Wooden Mill Columns."

Launch of the Terror.-There was great crowd of people at Cramp's shipyards on Saturday afternoon last, to witness the launching of the steel monitor Terror, and the town of Quincy who are petitioning for a railroad:

"What better or more durable communicative can be had than the Neponset River or the wide Atlantic? By using these our thriving village will be destroyed, our enterprising mechanics ruined, our beautiful gardens and farms made desolate, and our public or private interests most seriously affected. been building since October, 1874. She has been constructed under numerous contracts, and several more will be necessary before she is ready for service. The sum of \$516,774.80 was expended upon her up to last May, whom have invested their all either in trade, mechanical manufactures or real estate), and all—all are to be sacrificed under a car ten thousand times worse for the public than the car of Juggernaut! Look at the interests, for instance, of the public house in this place, kept by a most estimable citizen, who has ever—"

But I have no heart to copy further. In the wreck of an entire community we can spare no tears for the woes of a single tay-monitors Miantonomah, Amphritite, Monad-monitors Miantonomah, Amphritite, Monadand the Messrs. Cramp estimate that by the monitors Miantonomah, Amphritite, Monad-nock and Puritan, in course of construction at other yards, was continued until within the past few months. The dimensions of the Terror are: Length between perpendicu-lars, 250 feet; extreme breadth over armor, 55 feet 10 iuches; extreme depth armor, 17 feet 3 inches; depth of hold, 14 feet 8 inches. The delay in her completion has resulted in the advantage of substituting steel for iron in the construction of her tur-

At Senegal, Africa, the first locomotive

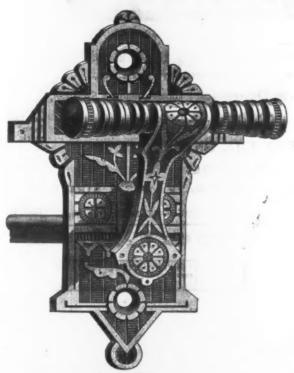
SARGENT'S DOOR BELLS



No. 415, Berlin Bronzed. No. 815, Bronze Metal



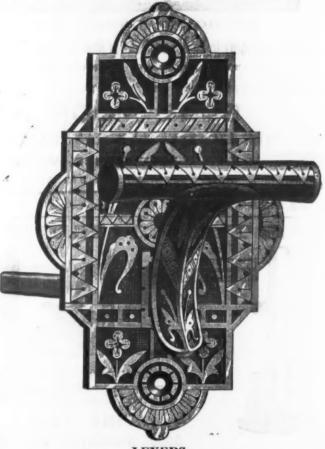
No. 806, Bronze Metal. No. 401, Berlin Bronzed, with Porcelain Knob.



No. 402. Berlin Bronzed. No. 802, Bronze Metal.



BELLS.
No. 2103½, Bell Metal.
No. 2113½, Nickel-Plated.
No. 2143½, Berlin Bronzed.



LEVERS.
No. 403, Berlin Bronzed. No. 803, Bronze Metal.



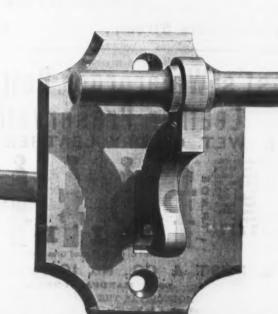
No. 400, Berlin Bronzed. No. 600, Silver-Plated.



No. 807. Bronze Metal.



No. 405, Berlin Bronzed. No. 805, Bronze Metal.



No. 708, Nickel-Plated.

SARGENT & CO. HARDWARE MANUFACTURERS. NEW YORK.

SCIENTIFIC AND TECHNICAL.

The Movement of Water in Plants. M. Julien Vesque has devised a simple method of demonstrating the transfer of water in the stems of plants, which promises to have a wide application. The stem is cut obliquely during immersion in water, and the thin part of the severed stem is placed in the field of the microscope. After the cover glass is adjusted, and the stem is securely fastened, so that it cannot be assilved. securely fastened, so that it cannot be easily disturbed by subsequent treatment, a very little freshly precipitated calcium oxalate or other finely divided substance is introduced under the cover. If the leaves have not been removed from the stem, a rapid current been removed from the stem, a rapid current is at once observed to flow toward the cut surface. The insoluble salt collects at the open mouths of the vessels, often passing into the capillary tubes after a temporary stop, and the same phenomenon is repeated stop, and the same pendintent is repeated several times as the minute plugs are formed and then sucked in. With lower powers of the microscope it is possible to use a second slip instead of the thin cover, and then the simple apparatus can be held more firmly in simple apparatus can be held more firmly in its place. In any case it is possible to measure the rapidity of the current by means of a micromatic eye-piece. When the stem is quickly stripped of its leaves the current is stopped at once, but when, on the other hand, a leaf or a part of the stem is pinched, there is immediately a back flow of water. It is undoubtedly well known that two conflicting views have been held as to the channel by which the upward movement of water in wood takes place. Some think that the transfer is so'ely by imbibition, and that no free water is carried bibition, and that no free water is carried from cavity to cavity of the wood-element or rather, that no free water exists in the cavities. Others have held that free water is carried from one wood-element to another, is carried from one wood-element to another, and that the walls themselves play only a subordinate role. To these opposed views may be added a third, which appears to be a compromise—namely, that water in a free state actually exists as a thin lining on the cell-wall. The chief advocate of the latter view has, however, abandoned it in favor of the implifying the recent publication. the imbibition theory. A recent publication by Elfving (Bot. Zeit., Oct., 1882) details the results of experiments which considerably strengthen the "cavity" theory. Now, just at this point come observations of Vesque, in a continuation of the paper regarding the method of direct demonstration, which go far toward showing that here, as was long ago suspected, the truth is to be found between suspected, the truth is to be found between the extremes. These experiments, which need to be carefully repeated, indicate that under certain circumstances the transfer of water takes place by means of the cavities themselves, but that in all cases they may serve the part of reservoirs. Moreover, the caliber and length of the vessels regulate the rate of transpiration, resistance to the movement of the water following the law of Poiseuille, so that the resistance is inversely proportional to the fourth power of the diameter, and directly proportional to their length.

Ancient Mode of Baking Walls.

Among the recent discoveries at Hissarlik, by Doctor Schliemann, are the remains of by Doctor Schliemann, are the remains of buildings which he supposes to have been temples. Nothing, he says, could better prove the antiquity of the buildings than the fact that they were built of unbaked bricks, and that the walls had been baked after they were laid up, by huge masses of wood piled up on both sides of each wall and kindled simultaneously. Each of the buildings has a vast vestibulum, and each of the front faces of the lateral walls is provided with six ver-tical quadrangular beams, which stood on well-polished bases, the lower parts of which well-polished bases, the lower parts of which were preserved, though, of course, in a cal-cined state. Doctor Schliemann maintains cined state. Doctor Schlemann maintains that in these ancient Trojan temples we may see that the ante or parastades (pier-formed ends of the side walls of temples when they are prolonged beyond the faces of the end walls), which in latter Hellenic temples fulfilled only a technical purpose, served as an important element of construction, for they were intended to protect the wall ends and to render them capable of supporting the ponderous weight of the superincumbent cross-beams and the terrace. Similar primitive antæ were found in two other edifices, and at the lateral walls of the northwestern gate. It was also discovered that the great wall of the ancient Acropolis had been built of unbaked bricks, and had been baked like these temple walls. According to Doctor Schliemann, a similar process of baking entire walls has never been before discovered, and the anta in the Hellenic temples are nothing else than reminiscences of the wooden anta of old, which were of impor-

Hardening Concrete.

A new method of hastening the indura-tion of concrete blocks was recently described before one of the scientific societies of Great Britain. According to this method, the concrete is made and rammed into the molds in the usual manner, after which the molds are placed in a chamber, which is maintained at a moist heat of about 100° F. This is said to favor the crystallization or setting of the cement, and allows the blocks to be removed from the molds in the course hours. The concrete is then placed in a bath composed of one part of silicate of

Asbestos Rope.

Asbestos rope is described among other articles now being turned out by the United Asbestos Co. of Great Britain. The strength

made like ordinary rope, but spun from Italian asbestos thread, and there seems to Italian asbestos thread, and there seems to be every probability of its favorable recep-tion by the public.

Earth Currents and Solar Spots.

Among recent interesting contributions relating to the above subject, we would mention a paper recently read by Mr. J. S. Adams before the British Society of Telegraph Engineers and Electricians. Mr. Adams had given considerable attention to the subject, and submitted his observations in a tabulated form, so as to render them more convincing. Referring to the sun spots of last November, it will perhaps be remembered that their passage was attended by an electric storm of great intensity and range. Mr. Adams observed the effects on telegraph lines between London and Leicester, and showed curves of the disturbances in these lines. He observed also that the electric storm did not continue during the whole period of passage of the solar spots, but only while they were centered on the earth. His inference from this fact is that the solar spots, being rifts in the sun atmosphere, permit the solar body to act more freely in dis-turbing the electrical condition of the earth, and that the solar atmosphere has really a screening effect on this action. Whether this be true or not, it is an interesting observation that the spots become active when centered on the earth, and, if true, in a gen-eral sense, it will enable astronomers and electricians to predict electric storms in future. Professor Adams observed that dur-ing the prevalence of spots the sun gives the earth less heat than ordinarily, and this, it is thought, may have something to do with the phenomena.

An Artificial Aurora.

An Artificial Aurora.

According to Engineering, of London, England, M. Lemstroem, the well-known professor of Helsingfors, who makes a study of auroral phenomena, has recently succeeded in producing what may be considered as an aurora on a small scale. During the past winter he chose a station in Finland, just within the Arctic circle, where there are two conical hills, one about 2000 feet and the other ubout one about 2000 feet and the other ubout 3000 feet high. He connected the tops of these hills to the earth at their bases with a network of copper wire, and one evening was rewarded by observing a luminous circle proceeding from the summit of one of the hills and reaching an estimated altitude of 360 feet. This terrestial discharge into the atmosphere was electrical, the electricity height of the control of the second of the sec the electricity being of positive sign

Bids for Ironwork in the New Pension Building.

On the 20th inst. there were opened in the office of the Supervising Architect, Gen.
M. C. Meigs, 12 bids for about 70 tons rolled
wrought-iron bars, 41 and 16 feet, and 1 foot
long, for ties and anchors for the walls of
the new Pension Office. The bids were as follows:

	Remarks.	Tensile strength. 45,000 b. W sq. in. 45,000 c. addition to have tensile strength of 22 long to the square inch. 40,280 pounda.
ound.	anchors.	Cents. 2-3 2-5 2-5 2-5 2-5 2-7 2-7 2-7 2-7 2-7 2-7 2-7 2-7 2-7 2-7
Price per pound.	as ft. r6 ft. bars. bars.	Counta. Counta. Counta. Counta. Counta. Counta. Counta
Ĕ	41 ft. bars.	Centa.
	Place of delivery.	Washington New York City. New Mashington Washington Washington Washington Washington Washington Washington Washington
	Residence.	Troy, N. Y. Philadelphia. Philadelphia. Philadelphia. Richmond, Va. Richmond, Va. Philadelphia Philadelphia Philadelphia Philadelphia Trenton, N. J. Washington. Washington.
	Bidders.	J. F. Balley Albary and Remandary Steel and Iron Co. Jaa. Rowland & Co. Jaa. Rowland & Co. Jahentown Kelling Milis Tredegar Iron to works. Morris, Wheeler & Co. Pennoyd Iron Works. Co. The Morris and Iron Ko. Co. The Morris and Iron Co.
	No.	H 8 W 4 N/O P/00 @ 0 H 2

Fire-Resisting Dwellings .- An intersting experiment, conducted with the view of testing a new fre-resisting plaster, was recently conducted in London, England. A brick building had been constructed for the purpose of being tested, and a company of practical architects and builders watched the proceedings. The house in which the exsoda and 12 parts of water, raised to a periment was made consisted of two rooms temperate of about 110 F. The solution penetrates to the center of the block, which is resisting medium known as Hitchin's plas-tering. Highly combustible materials were thus hardened throughout instead of merely on the surface, as in the usual process. In three or four days, it is said, the blocks attain the strength of ordinary cement three or four months old.

resisting medium known as Hitchin's plastering. Highly combustible materials were placed in the room on the ground floor and on the top of the building, which represented the third story, and these masses or four months old. tering. Highly combustible materials were placed in the room on the ground floor and were ignited simultaneously and allowed to burn for half an hour. During that time the intermediate room was entered, and,

INDUSTRIAL ITEMS.

MAINE.

The Goss Iron Works, at Bath, will begin business about April 1. Three months' work has been already contracted.

MASSACHUSETTS.

The heaviest piece of machinery ever built in Newburyport was placed on the cars the other day, being the great pumping engine for Newport, R. I. It required over 15 tons of iron, brass and steel for its construction, one steel casting weighing over 700 pounds, and the fly-wheel alone nearly two tons. The new engine proves capable of very high speed, andwas made at the machine shop and foundry of Albert Russell & Sons.

The iron furnaces in Lanesboro' will be started about May 1.

NEW YORK.

Messrs. James Aikman & Co., of Nev York, inform us that they have opened offices and sales room in their new warehouse, Nos. 30 and 32 Liberty street, Newark, N. J., connected with their works, where they have a complete stock for the convenience of customers whom it may suit to be waited upon there and have shipment made directly from the factory.

PENNSYLVANIA.

Stokes & Parrish, of Philadelphia, are now turning out an unusually large amount of work in their particular line, and though they enlarged their works considerably during the past two years, they are taxed to their fullest capacity. Their furnace hoists are in constant demand, and among orders recently entered we would mention a fur recently entered we would mention a furnace hoist, with its complete outfit, for the Everett Iron Co., whose furnace is at Bedford. The same company were supplied with a mining hoist for a 200 foot shaft. The firm have also just completed a furnace hoist for the Woodward Iron Co., at Wheeling, Jefferson County, Ala., and one for the Shenandoah Furnace, at Milnes, Page County, Va. Considerable activity is also displayed in the county of Va. Considerable activity is also displayed in turning out hydraulic passenger elevators. Among several of the most prominent buildings in which they are being placed we would mention the Liverpool and London and Globe Insurance Co., United Firemen's Association, and the Brown Building, on Walnut estate, the Large Building of Chestrat nut street; the Jayne Building, on Chestnut street; three in Wanamaker's Grand Depot, one in the Commonwealth Guarantee, Trust and Safe Deposit Co., of Harrisburg, and many others of almost equal importance.

What is probably the first practical at tempt to use compressed air as an under ground motor in a coal mine in this country is meeting with success at the Old Eagle pits of W. H. Brown & Sons, of Pittsburgh, 27 miles up the Monongahela. This new motor was built at the Baldwin Locomotive motor was built at the Baldwin Locolnovity. Works, and is a most singular looking affair. The available hight above the pit rails being only 5 feet 10 inches, the air locomotive had to conform thereto. The air receivers are 27 feet long and 38 inches in diameter, and made of sheet steel. These are filled with air compressed to 400 pounds per square inch, forming the actuating power of the machine. These air receivers rest on four wheels, driven by a pair of locomotive cylinders, gearing, &c., just as in a railway engine, the air taking the place of steam. The engine, the air taking the place of steam. The originator of this idea, Capt. Harry Brown, expressed himself as more than satisfied with this locomotive. It does the work of a score of mules, requires the attention of only one man, who also operates the air-compressing machinery, and can haul 55 loaded cars (60 tons) up a gradient of 100 feet to the mile. feet to the mile

Messrs. Robert Wetherill & Co., of Chester, are building a 170-horse-power engine for Gorringe's new shipyard at Port Richmond. The boilers are already in place, and the work on the engine is being rapidly

The Hartman Steel Co., of Beaver Falls. have started a portion of the machinery in their new wire mill, and according to present accounts it is working very satisfactorily.
The company have just placed contracts for their merchant steel and rod trains, which are designed to be of superior construction.
The steel for this plant will be supplied by the Edgar Thomson Steel Works, whose owners, we are informed, are also largely interested in the Hartman Steel Co.

Tinius Olsen & Co., of Philadelphia, recently shipped a 50,000-pound testing machine to the University of Minnesota, at Minnesota Hydraulic presses were also shipped to Vulcan Iron Works, of Chicago, and to the Sterns Mfg. Co., of Erie, Pa.

The Tyrone Forges, near Tyrone, Blair County, are now operated by Messrs. M. V. Smith & Co. Since January 1 of this year they have added to the forge two double puddling furnaces, one regenerative gas heating furnace, and one 16-inch train of rolls. Their product will be fine iron ex-clusively, intended for carriage axles, cable rods, &c., and the daily capacity will be 30

The Wharton Safety Railroad Switch Co. The wharton safety stairond Switch Co., of Philadelphia, are gradually removing their works to Jenkintown, where the entire establishment is to be finally located. At the latter place about 150 men are employed, while more than 400 are employed in Phila-delphia. It is said that the removal will effect a saving of 90 cents a ton in freight for the delivery of all material, and from \$15,000 to \$20,000 annually in taxes.

The Chartiers Glass Works, on the Lake Erie Railroad, have been sold to S. S. Shultz for \$500.

OHIO.

It is understood that the contracts for Asbestos rope is described among other articles now being turned out by the United Asbestos Co. of Great Britain. The strength ceiling showed no marks of destruction, not-beems to be about one-fourth that of ordinary hemp rope of the same diameter. Rope 1½ inches in diameter is stated to have a breaking strength of 1 ton, and 20 feet of it weigh 13½ pounds. It is made especially for fire-scape purposes, for theaters, fire brigades, and for ready means of escape from houses and public buildings, its advantage being that it will not break and drop its burden if a flame bears upon it. It is months. Messrs. Lambert Bros., have been awarded the contract for a portion of the

work, which they expect to finish in work, which they expect to miss in half that time. The nail factory will have room for 120 nail machines, 60 of which will be put up at the start. The power to drive these machines will be placed in the drive these machines will be placed in the sions in the United States during the year 1832, resulting in the death of 271 persons

The Champion Co. are now moving their Republic.

The Cleveland Trade Review credits the Youngstown Register with the statement that among the recent improvements at the irard Furnace is a new hot-blast large steam cinder crane air hoist in lowering and raising the bell." A comma or two might be thrown in without injuring the hoist.

It is rumored that Mr. Wm. Garrett, of the Garrett steel wire rod mill, contemplates removing to Beaver Falls, Pa.—a decided loss to Cleveland iron circles.

We have been informed that the contract for furnishing 7000 feet of iron fence to inclose the Woodland Avenue Cemetery, at Cleveland, was recently awarded to the Champion Iron Fence Co., of Kenton.

ILLINOIS

Mr. John C. Lamb, of Springfield, has nearly doubled the capacity of his works by making them one story higher and adding an extension 30 x 85, containing a new office and many other improvements.

Referring to the relations existing between the Springfield Iron Co., of Springfield, and the Amalgamated Association, it may be of interest to our readers to know that the company recently sent an agent to Pittsburgh, the headquarters of the above association, in order to advertise for men. The step proved successful, and every department of their works is now in operation with non-union men. Everything, it appears, is moving along satisfactorily, and the company contemplate putting the men on double turn.
The successful issue of the Springfield Iron Co.'s movement would appear to be a lesson for both manufacturers and men, and one which may be turned to some account.

All departments of the Calumet Iron and Steel Co.'s works, at Cummings, are running full, except the blast furnace, which is expected to start up the middle of April. The company have now in operation over 100 nail machines, and have lately added to their plant a foundry for the manufacture of steel castings. The steel obtained for this purpose is taken from their open-hearth furnaces, thus insuring castings of a very superior quality. Nine hundred men are employed in the works.

The Chicago Wire and Iron Works, a new oncern, have established themselves at 110 Lake street, and are placing in a full line of wire goods, such as bank, store and office railings, and window guards for churches, stores, residences, public buildings, &c. Their store and factory are being fitted up in first-class style, and all the tools, machinery, patterns, &c., of the manufacturing department of the Chicago agency of the Clinton Wire Cloth Co. have been purchased by the first-named concern, together with the good-will of this branch of their business. Mr. George K. Rix, for many years the super-intendent of the Clinton Wire Cloth Co.'s Chicago manufactory, is a manager of the new company, which company will doubtless do a large business in their line.—Chicago Industrial World.

The Chicago Steel Works are running on full time with a force of 75 men. They re-port a fair run of orders, and a good outlook for business in the immediate future.

INDIANA.

Nine bars of iron lately made by the Ohio Falls Iron Works, of New Albany, for the Louisville Exposition buildings, were tested at Louisville on the 15th inst. The lowest ultimate strength was 54,545 pounds and the highest 62,577 pounds per square inch. The elongation varied from 28 to 32, and the reduction of area from 36 to 42 per cent. These works are now turning out the wrought iron for the above-mentioned build-

MICHIGAN.

The Martel Furnace has been blown out, ostensibly on account of the depression in the iron trade—but there were other reasons, no doubt, which will declare themselves in the near future. The late manager has been called to another field of labor—exactly where it is located the Journal is not informed.—Marquette Mining Journal.

MISSOURI. The American Brake Co. have broken

in St. Louis. The shop will have a frontage such as of 75 feet and a depth of 130 feet, and will be filled with all the latest and best improved machinery. Their capacity will be enlarged to the extent of ten sets of brakes per day, and their present working force of 30 men will be considerably increased. The company have had suit brought against them by the Westinghouse Co., the complainant alleging an infringement of the George Westinghouse locomotive brake patents. An injunction is asked for damages to be formed determined. The American Brake afterward determined. The American Brake Co. manufacture three different kinds of ecomotive brakes, only one of which (the andolph driver brake) is involved in the Randolph driver controversy, and this one not very extensively, as only nineteen of them have thus far been turned out. The American Brake Co. seem to think that the filing of the suit was for no other purpose than to frighten away their customers, and thereby prevent their brakes from becoming more generally known. They propose to fight the suit and to protect the buyers of the Randolph brake.

The St. Louis Furnace Building and Construction Co. have just completed the work of lining the Jupiter Furnace of the St. Louis Ore and Steel Co.'s works, and are now lining Furnace No. 3 at the same works.

Boiler Explosions in 1882.

center of the factory building, which is also the center of the main line of shafting.—

Ironton Register.

1832, resulting in the death of 271 persons and the injury of 369. This list, however, does not include every accident, but only those reported in the papers. The explosions, as stated in our contemporary, amount machinery into the new shop, and expect to couple on the new engine the latter part of the week. When completed and fitted up, it will be one of the best arranged and completes the specified list of the total number of explosions is shops in the country.—Springfield as follows:

as follows :
Saw-mills and wood-working establishments
Steam vessels generally
Iron works, machine shops, &c
Locomotives
Portable hoisters and agricultural engines
Flour mills and elevators
Steam-heating, buildings, ranges, &c
Paper-mills, bleaching, digesting, &c
Distillation, oreacting, digesting, &c
Distilleries, sugar-houses, chemical works, &c.
Mines, oil wells, &c
Miscellaneous

Total for the year Out of 25,742 visits of inspection, in which 55,679 boilers were examined and 21,428 complete internal inspections were made, and in 4564 cases the hydrostatic test was applied, the number of boilers condemned were 478; the number of defects found were 33,690, of which 6867 were considered dangerous. The number of defects found is as

OHOWS :		
	Whole	
Nature of defects.	umber.	Dangerous.
Deposit of sediment	. 3.138	467
nerustation and scale	4.913	490
nternal grooving	. 237	113
internal corrosion	. 1,270	932
External corrosion	. T.flot	437
Defective braces and stays	. 613	293
Defective settings	. 035	158
Furnaces out of shape	. 1,030	204
Fractured plates	. 1.801	goa
Burned plates	. I.084	412
Blistered plates	. 2,853	385
Defective riveting	4.807	535
Defective heads	. 386	149
Serious leakage around tubes.	. 3.414	845
Serious leakage at seams	1.957	342
Defective water gauges	. 640	846
Defective blow-outs	. 290	118
ow water	. TAR	84
Overloaded safety valves	. 358	136
Defective safety valves	. 238	99
Defective pressure gauges	. r 858	344
to pressure gauges	. 43	14
Defective feed-pipe	. 43	1
Inclassified dangerous defects	8	2
Total	** 600	6,807
A. C.	33,590	0,007

TRADE PUBLICATIONS.

The "Otto" Silent Gas Engine.

Messrs. Schleicher, Schumm & Co., of Messrs. Schleicher, Schumm & Co., of Philadelphia, Pa., manufacturers of the "Otto" silent gas engine, have just sent us a pamphlet giving instructions for setting up and working this engine. It embraces 15 pages, and is handsomely illustrated throughout, the engravings showing the different important parts of the engine, while the reading matter submitted is of a nature calculated to give the reader a clear idea of its action. The erection of the engine, the pipe culated to give the reader a clear idea of its action. The erection of the engine, the pipe connections for the gas supply, gas meter, exhaust pipe, &c., are all dwelt upon in turn, and we do not doubt that users of the "Otto" engine will find the catalogue a most convenient and serviceable adjunct.

Phosphor-Bronze.

The Phosphor Smelting Co., Limited, of Philadelphia, Pa., have just issued two very neat circulars giving some valuable hints concerning phosphor-bronze. They call special attention to the merits of what is known as Phosphor-Bronze S' Bearing Metal, which is being very extensively used in locomotives, passenger and freight cars, marine and stationary engines and miscellaneous machinery, being applied to bearcellaneous machinery, being applied to bearings, slide-valves, &c. They state further
that the experience of some years has
proved the reliability and value of phosphorbronze for telephone wire, and they recommend it as possessing all the qualities essential for durable line service. A recent improvement is said to have been effected in its
manufacture, by means of which the tendency
to kink is entirely obviated, and the wire to kink is entirely obviated, and the wire will now give no difficulty from this cause. It can also be put up with the same facility as other wire. The circulars also enumerate as other wire. The circulars also enumerate the various advantages of phosphor-bronze the various advantages of phosphor-bronze telephone wire, and submit a list of standard sizes that are now being turned out by them. The company, we understand, are the sole manufacturers of phosphor-bronze in the United States, and we do not doubt that some attention given to their manufactures will be of interest

Size and Distribution of Rivets.-The best size of rivets, the distance betthem, and the proper amount of lap oplates, can be determined only by plates, practical experience, aided by experiments. Fairbairn gives the following table as the results of his information upon this imporground for the erection of a machine shop tant subject, the proportions given being in St. Louis. The shop will have a frontage such as to make the joints steam or water

2 128 20% 68 88

Thickness of platin in inches.	Diameter of rive	Length of rive from the head inches.	Distance of rive from center i	Amount of lap single joints inches.	Amount of lap double joints inches.
t.	d.	1.	a.	b.	C.
3-16 to 4-16	28	4368	68	6 <i>t</i>	rot
5-16	at .	4348	st	6t	108
6-16	2t	43/48	58	5368	854t
8-16 to 12-16	136	4561	48	4361	63/4

The new freight yards at Weehawken are The new freight yards at Weehawken are about as complete as anything that has been done in this part of the country. There are 10 docks varying from 150 to 250 feet in width, most of them nearly 1200 feet long. There are six ferry slips, milk station, grain elevators, and an immense stockyard, with separate docks. Two of the tracks are devoted to coal, and are connected with the main

Special Notices. Wanted.

Light Machinery of all Kinds to Build.

Also Experimental, Jobbing

tons special shapes or sizes of iron.

and price, and point of delivery.

Retail Hardware Business, doing a fair trade, with good prospects of improvement, in a good manufacturing city about seven miles from New York. Owner wishes to engage in manufacturing business. Address

RETAIL HARDWARE,
Office of The Iron Age, 83 Reade st., New York.

Wanted.

One Second-hand Lathe.

30 in. to 3 ft. swing Address

NEW HAVEN WIRE CO., New Haven, Conn.

Wanted

To buy-A first-class steam power Boiler Riveting Machine.

Send description, price and conditions to JAMES MCNEIL & BRO., Pittsburgh, Pa.

Wanted.

An experienced man to superintend the manuacture of Foundry Facings.

Address 306 and 308 Aliceanna st.,

Baltimore, Md. Wanted.

Power Shears.

With capacity to cut steel rails. Send full particulars, with lowest price for spot cash, to GUELPH CARRIAGE GOODS CO., Guelph, Canada.

Guelph, Canada.

Cituation Wanted in any position of trust,
by a thorough business man, at present engaged conducting the export business of a Hardware Manufacturing House in London, but intends
proceeding to New York in April. Has 17 years'
experience in different branches of the Hardware
trade. Excellent pennan, correspondent and
book-keeper; has first class testimonials; his experience would be advantageous to house exporting hardware to England. Address IRON,
118 Caledonian Rd., Islington, London, England.

Wanted.

Salesman, one familiar with the Iron and Hard ware Jobbers and the Agricultural Implement manufacturers in the west. Address, with refer-M. I. C., ences, care Letter Carrier No. 72. St. Louis, Mo.

Wanted.

BOX 108.

Alliance, Ohio,

Wanted.

An old-established firm in Thames street, manuan oid-established firm in Thames street, manufacturing specially one description of Ornamental Castings, but having warehouse too large for own use, are desirous to meet with manufacturers of other goods requiring them stocked in London and sold on commission. Apply to

203 yo, care of Ironmonger Newspaper,

42 Cannon street, London, England.

WANTED.—To make a change, by an experi-enced Traveling Sal:sman in the Cutlery or Hardware business, who can control a large trade in the South rn States.

Address

35 N. Howard st., Baltimore, Md.

SITUATION WANTED.—At once, by a young man with 15 years' experience in the General Hardware trade. The best references furnished Address Address E. L., Box 90,
Office of The Iron Age, 83 Reade St., New York

WANTED.—By a competent man with 13 years' experience and a good knowledge of Millwright and Machine Work, a position as foreman in an iron bridge works.

Address
FOREMAN,
Office of The Iron Age, 83 Reade St., New York.

HARDWARE COMMISSION HOUSE solicits make advances on consignments.

SLOAT & QUINLAN, 25 Murray st., N. Y.

A N EXPERIENCED Civil and Mining Engineer wishes to make an engagement. Can give best of references. Address ENGINEER.

Office of The Iron Age, 83 Reade St., New York.

E. P. BULLARD,

Circuation Wanteb, by an unmarried man, as Praveling Salesman or as Salesman in store; has had it years experience in Building and Carriage Hardware. Has successfully carried on a branch store; can speak German. Satisfactory reference furnished. Address. Comoc of Tac Iron Age, 53 Reade st., New York.

N ANNEALER with s years' experience wishes a situation. Can give good reference. W. B. SHONTS,

126 State st., Albany, N. Y

W ANTED-By a practical man, a situation as Foreman Medier in an Iron Foundry. Has had pyears' experience as foreman, and is thoroughly competent to take charge of a jobbing shop of any size and doing any class of work, and run it to a profit. Best of reference. Address

H. G., Goshen P. O., N. Y.

Solicited. We refer to the leading standard and importers.

MANUFACTURERS seeking a desirable, high, healthy location, with unrivaled railroad facilities, correspond with IMPROVEMENT COMMITTEE, New Castle, Henry County, Ind.

Special Notices.

SECOND-HAND AND NEW MACHINERY.

IN STORE, Feb. 1. One Corliss Beam Condensing Engine, 30 in. x 72 in Two Horizontal Corliss Engines, 10 in. x 22 in. New One Horizontal Corliss Engine, 12 in. x 30 in. New One Horizontal Corliss Engine, 14 in. x 30 in. New Also Experimental, Jobbing and Repair Work.

Would also contract for rolling from 100 to 500 tons special shapes or sizes of iron.

Correspondence solicited.

GLOBE NAIL CO.,
Boston, Mass.

Wanted.

Wanted.

Oily Wrought Iron Turnings. Name quantity

One Horizontal Engine, 12 in. X at in. One Horizontal Engine, 5 in. X 12 in. One Horizontal Engine, 5 in. X 12 in. One Horizontal Engine, 6 in. X 8 in. One Horizontal Engine, 6 in. X 8 in. One Flaner, 22 in. X 12 ft. One Engine Lathe, 12 in. X 12 ft. One Engine Lathe, 14 in. X 12 ft. One Engine Lathe, 15 in. X 12 ft. One Hand Lathe, 14 in. X 12 ft One Burleigh Rock Drill. New.
One Locanotive Boiler, 10 in x 15 in.
One Locanotive Boiler, 10 in x 15 in.
One Horizontal Tubular Boiler, 10 in x 15 in.
One Horizontal Tubular Boiler, 25 in. x 15 in.
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J. Gray's Machinery Depot, 37 Dey St., N. Y.

For Sale.

New Machine Tools, &C.

15 in. x 6 ft Engine Lathe. 250

16 in. x 6 ft. Engine Lathe, with 6 in. chuck. 350

18 in. x 6 ft. Engine Lathe, power cross feed. 350

26 in. x 10 ft. Engine Lathe, power cross feed. 350

26 in. x 10 ft. Engine Lathe, power cross feed and compound rost. 36

26 in. x 10 ft. Engine Lathe, power cross feed and compound rest. 36

27 in. x 2 ft. Engine Lathe, power cross feed and compound rest. 37

27 in. x 2 ft. Engine Lathe, power cross feed and compound rest. 37

27 in. x 2 ft. x Planes 76 ft. Planer. 4 fine tool. 76

27 in. x 3 ft. x Planes 76 ft. Planer. A fine tool. 77

28 in. x 10 in. x 10 ft. x 10

AMERICAN TOOL CO.,

Cleveland, Ohio

For Sale.

One 22x36 right-hand box-bed slide-valve Stationary Engine, Gardner governor, band wheel in halves, 14 ft. diameter, 24 inches face, 13,000 lbs. weight. Wrought-iron hammered shaft, 11 inches diameter, disk crank. A heavy substantial engine, entirely new.

For information address

THE LANE & BODLEY CO.. Cincinnati, Ohio.

TO SPECULATORS.

A GRAND BARGAIN.

A LARGE AND FULLY-EQUIPPED MACHINE SHOP FOR SALE.

I will sell at low figures, and at reasonable terms, my magnificent Machine Works at Newark, Ohio, fully equipped with every necessary to make a first-class establishment. It stands on two acres A Competent man to work in the capacity of of ground in the center of this thriving city. A Draftsman and Chemist at a Steel Works. Please give references and salary expected, and state previous experience. Address living; an usually healthy locality.

F. J. L. BLANDY.

Zanesville, Ohio.

For Sale.

Complete outfit for the manufacture of Iron Fences, consisting of No. 6 Long & Alstetter punch, picket machine, patterns, photographs. punch, picket machine, patterns, photographs, cuts, &c. Write for particulars to IRON FENCE.

Madison, Ind.

STORE FOR SALE.—Hardware Store in a healthy village in Tompkins County. Stock, \$3000; sales, \$15,000 per year. Terms cash. Price, cost. Address BOX 213, Ithaca, N. Y.

For Sale.

An old established Hardware and Tin Business is a growing town in Western New York. Stock i good condition and trade increasing.

Address

B. H., Office of The Iron Age, 83 Reade st., New York.

For Sale.

One Iron Planer.

14 Dey street, New York.

E. BISSELL & CO., Wholesale Hardware Auctioneers.

83 Chambers and 65 Reade Sts., N. Y.

Sales held weekly for the trade. Consignment olicited. We refer to the leading Manufacturer

Special Notices.

New and Second-hand Iron Working

MACHINERY.

Two Engine Lathes, 42 in. x 16 ft. Triple Geared. Ames. New. August.
One Engine Lathe, 30 in. x 18 ft. Fifield New. Aug. 1. One Engine Lathe, 30 in. x 18 ft. Ames. New. One Engine Lathe, 30 in. x 18 ft. Ames. New. One Engine Lathe, 20 in. x 16 ft. Ames. New. One Engine Lathe, 20 in. x 12 ft. Ames. New. One Engine Lathe, 20 in. x 12 ft. Ames. New. One Engine Lathe, 20 in. x 12 ft. Ames. New. One Engine Lathe, 20 in. x 16 ft. Ames. New. One Engine Lathe, 20 in. x 16 ft. Ames. New. One Engine Lathe, 10 in. x 6 ft. ft. Brigeport Mch. Tool Works. New. Six Engine Lathes, 13 in. x 6 ft. Ames. New. Six Engine Lathes, 13 in. x 6 ft. Ames. New. Six Engine Lathes, 13 in. x 6 ft. Ames. New. Two Engine Lathes, 13 ft. x ft. Ames. New. Two Engine Lathes, 20 in. x 5 ft. Hendey. New. One Chucking Lathe, 20 in. x 5 ft. Hendey. New. One Planer, 20 in. x 3 ft. Bridgeport. New. One Planer, 20 in. x 3 ft. Bridgeport. New. One Planer, 20 in. x 3 ft. Bridgeport. New. One Planer, 20 in. x 5 ft. Hendey. New. One Planer, 20 in. x 5 ft. Hendey. New. One 1 in. Stroke Shaper. Hendey. New. One 1 in. Stroke Shaper. Hewes & Phillips. One 1 in. Stroke Shaper. Hewes & Phillips. One 1 in. Stroke Shaper. Hewes & Phillips. One 2 in. Stroke Shaper. Hendey. New. One 2 in. Stroke Shaper. Hendey. New. One 5 in. Stroke Shaper. Hendey. New. One Sorew Machine. No. 2. P. & W. Al. One Sorew Machine. No. 2. P. & W. Al. One Sorew Machine. New Fattern. Writeed. Secon. The Spindle Drill. No. 1. Prant & Whitney. One 20 in. Upright Drill. Prentice. New. One 30 in. Upright Drill. Prentice. New. Three Sen-itive Drills. Prentice. New. One 30 in. Upright Drill. Prentice. New. Three Sen-itive Drills. Prentice. New. Three Se Engine Lathea, 42 in. x 16 ft. Triple Geared. mes. New. August. Fifield New. Aug. I. Engine Lathe, 36 in. x 18 ft. Fifield New. Aug. I. Engine Lathe, 24 in. x 16 ft. Ames. New. Engine Lathe, 24 in. x 16 ft. 14ft. and 20 ft.

New York Agency Brown & Sharp

Co.'s Machinery. New Machine Tools, &c. E. P. BULLARD, 14 Dey St., New York. GENERAL EASTERN AGENT FOR

Akron Iron Co.'s Patent Hot Polished Shafting.

For Sale.

Port Henry Furnaces.

The Furnace and Mining Property of the Bay State Iron Co., situated at Fort Henry, N. Y. The furnace property is located on the waterly shore of Lake Champlains is located on the waterly shore of Lake Champlain and the water, with privilege of filling same; as a wharfage front of about 160 feet and includes within its boundaries ample deposits of sand and limestone for running the furnaces.

There are two Blast Furnaces, 16 ft. bosh and 66 ft. high, capable of making 80 tons of Iron daily; two brick Casting Houses, three Blowing Englines, brick Machine Shop, brick Carpenter Shop, brick Engine House, stone Foundry, three large wooden Dwelling Houses, and brick and wooden Blocks containing 52 tenements.

Houses, and orice and wooden brokes containing of tenements.

The containing Property consists of the Barton Ore and containing its acres, and having the proper machinery for rasing its tones ore per day, which is of magnetic quality, yielding about so per cent. Iron. With the above-named property will be sold the Company's right, running about twenty years, to a large portion of the product of the Cheever Ore Bed, at a price exceedingly favorable to the furnace property, and rights in several Ore Tracts near the furnace as yet undeveloped.

For further particulars and for pampalots describ-

nace as yet the particulars. and the property, apply to ing the property, apply to ing the property, a VERV RICHARDS, 2 Pemberton Sq., Boston, Mass W. T. FOOTE, or GEO. R. SHERMAN, Port Henry, N. Y.

FORSAITH & CO.,

209 Centre Street, New York City,

have the following new first-class modern Engine es ready for instant shipment : 8 ft. x 18 in.
12 ft. x 18 in.
12 ft. x 18 in.
13 ft. x 20 in.
8 ft. x 20 in.
8 ft. x 22 in.
14 ft. x 20 in.
16 ft. x 26 in.
16 ft. x 26 in.
16 ft. x 26 in.
16 ft. x 36 in. ne 48 in. Hadial Drill. With a large stock of other Machine Tools.

Foundry for Sale or to Let.

of the opposite side of Hudson River from Troy, N. Y., on the opposite side of Hudson River from Troy, N. Y., on the line of N. Y. C. R. R. and R. & S. R. R. Dep't of D. & H. C. Co. tracks; within easy reach also of Hudson River and Erie and Champlain Canals. Goods can be shipped as late as p. m. and be in New York early next morning. To manufacturers of Hardware specialties it offers exceptionally fine advantages. Has a good engine and all necessary machinery in the buildings.

ngine and an occupance solicited. Address
Correspondence solicited. Address
Troy, N. Y.

Rolling Mill Men Wanted.

There is a difficulty at Springfield, III., between the Springfield Iron Co. and the Amalgamated Association of Iron and Steel Workers. In consequence, jobs are open for heaters, roll hands of all kinds on bar, guide and plate trains, working both Iron and steel, and also for puddlers. There is no dispute about wages. Pittsburgh prices are paid. Permanent positions will be gives no competent men. Address SPRINGFIELD IRON CO., Springfield, III.

A Gentleman

well known to the Hardware and Woodenware Jobbing trade of the Northern States, from Be ston to Omaha, now representing one factory, desires to add two or three others, selling the goods direct, and on a small salary, he paying expenses. Has had years of experience with this ir de. Address TRAVELER X. Z., Office of The Iron Age, 83 Reade St., New York.

To Brass Foundries. To Brass Manufacturers.

Our new foot press, for cutting off GATES from brans castings by FOOT power, is now ready. Weight, 26 lbs. Frice complete, \$5,0, net. A boy can operate it easily. We warrant them to give the most perfect satisfaction. PEERLESS PUNCH AND SHEAR C. SAU SHEAR C. & W. Dey Street, New York.

W. Dey Street, New York.

WANTED.—A young man who can give the best of references as to character and ablifty would like a situation in some office or bank. A thorough knowledge of office work and a perfectly satisfactory term of service where last employed is claimed.

Address.

Office of The Iron Age, 83 Reade St., New York.

Oswego, N. Y.

CREW PRESS FOR SALE.—A large Screw Press, on early new, in fine order; screw, 3¼ in. diam., o in. between uprights, c in. round hote in bed; weight, about 1200 bs. Frice. 34 N. Dey st., how York.

Special Notices.

NEW AND SECOND-HAND

MACHINERY.

MARCH 27, 1883.

The following new and improved Machinists' Tools are part of what we have for early delivery: 1 42 in. swing, 20 ft. bed Engine Lathe. Feby 15, 25 in. swing, 16 ft. bed Engine Lathe. Feby 15, 26 in. swing, 14 ft. bed Engine Lathe. Feby 15, New Corliss Engine, 16 in. x 42 in. Complete in weeks. The following on hand:

1 30 in. swing. 14 ft. bed Engine Latne. FeDy 15.

1 New Corliss Engine. 16 in. x 42 in. Complete in four weeks.

The following on hand:

1 New Corliss Engine. 12 in. x 30 in. Complete. 1 30 in. swing, 18 ft. bed New Engine Latne.

1 30 in. swing, 18 ft. bed New Engine Latne.

1 30 in. swing, 14 ft. bed New Engine Latne.

1 30 in. swing, 14 ft. bed New Engine Latne.

1 30 in. swing, 14 ft. bed New Engine Latne.

1 2 in. swing, 12 ft. bed New Engine Latne.

1 2 in. swing, 12 ft. bed New Engine Latne.

1 2 in. swing, 12 ft. bed New Engine Latne.

1 2 in. swing, 15 ft. bed New Engine Latne.

1 10 in. swing, 16 ft. bed New Engine Latne.

1 10 in. swing, 16 ft. bed New Engine Latne.

2 in in. swing, 16 ft. bed New Engine Latne.

2 in. swing, 16 ft. bed New Engine Latne.

2 in. swing, 16 ft. bed New Engine Latne.

2 in. swing, 16 ft. bed New Engine Latne.

2 in. swing, 16 ft. bed New Engine Latne.

1 2 in. swing, 16 ft. bed Foot Engine Latne.

1 2 in. swing, 16 ft. bed Foot Engine Latne.

1 2 in. swing, 16 ft. bed Foot Engine Latne.

1 2 in. swing, 16 ft. bed Foot Engine Latne.

1 2 in. swing, 16 ft. bed Hand Latne. New.

2 in. swing, 16 ft. bed Hand Latne. New.

2 in. swing, 16 ft. bed Hand Latne.

2 in. swing, 16 ft. swing, 16 ft. bed Hand Latne.

2 in. swing, 16 ft. bed Hand Latne.

2 in. swing, 16 ft. swing, 16 ft

The George Place Machinery Company, 121 Chambers and 103 Reade Sts., New York.

Cold Rolled Shafting, Pulleys, Hangers, Coup-ngs, &c., always in stock.

For Sale.

We have the following second-hand Machinery

One Iron Planer, to plane 24 ft. long, 62 in. x 62 n. square. It is powerfully geared, heavy and in

One Iron Planer, to plane 24 ft, long, 62 in. x 62 in. square. It is powerfully geared, heavy and in good order.

One Iron Planer, to plane 12 ft. long, 36 in. x 32 in., in fair cendition.

One Pit Lathe, face plate, 6 ft. diam., with internal wheel full diam, external wheel 38 in. diam., quadruple geared, with turn 10 ft. diam. x 22 in. face in pit. Swings 60 in. over ways, 48 in. over carriage, 21 ft. 6 in. between centers. All complete.

One Engine Lathe; will take in 14 ft. between centers, and swings 53 in. over ways; has hollow spindle, and is adapted for both turning and boring, with countershaft, all complete.

One Engine Lathe; will take in 17 ft. 6 in. between centers, and swings 48 in over shears, 32 in. over carriage. It has internal gear and cross feed; countershaft complete.

One Stotting Machine; 12 in. stroke, slots to the center of 46 in.; adjustable table and universal feed motion.

One combined Power Punch and Shears to punch 5/8 x 5/3 and shear 1/8 in. iron.

THE GEORGE PLACE MACHINERY CO., 121 Chambers and 10 Reade sts.,

First-Class Second-Hand Engines, Boilers, &c., FOR SALE.

12x24 in Corliss, 18x46 in. Wright.

10x42 in. Corliss, 20x36 in. Wright.

10x42 in. Atlen, 18x36 in. Ward & Stanton.

2xx54 in. Beam Engine, Corliss valves, now running.

2xx48 in. Beam Engine, shide valve.

2xx48 in. 16x21 in., 14x32 in., 12x16 in., 12x30 in., 12x24 in.,

2xx4 in., 12x1 in., 12x32 in., 2x16 in., 2x30 in., 12x24 in.,

2xx4 in., 12x1 in., 2x22 in., 0x7 in., 0x16 in., 8x13 in.,

2xx4 in., 12x1 in., 2x22 in., 0x7 in., 0x16 in., and others.

Two Copeland & Bacon Elevator Engines.

Three Boit Cutters, for short boits or wood screws.

Horizontal Tubular Boilers, 25, 15, 40, 50, 60 to 75 H. P.

Locomotive Boilers, 8, 10, 12, 15, 20 to 35 H. P.

Upright Boilers, 5, 8, 10, 12, 15, 20 to 36 H. P.

Steam Pumps, all sizes and makers.

Prices reasonable and all goods reliable.

WILSON & ROAKE Front & Dover Sts., . NEW YORK.

For Sale.

A stock of Hardware, with a good business, in one of the best towns in Central Iowa. Will be WEDNESDAY, April 4th, 1883, A. G. THOMPSON.

Cedar Falls, Iowa. For Sale.

MACHINES FOR MAKING PICKS, MATTOCKS

AND AXES, With Solid Punched or Adze Eyes. T. & CO., Box 25. Office of The Iron Age, 83 Reade st., New York.

STEAM YACHT

For Sale, for want of use. Hull, 22 ft, x 7 ft, beam. Boiler in perfect order. Vertical engine, 8 in. x 8 in. Suitable for passengers or towing. Neatly fitted up with seats, cushions, roof and side awnings. Registered.
A. G. BROOKS & WINEBRENER, 261 N. 3d St., Philadelp

For Sale.

12 X 18 cut-off Engine, band wheel 8 ft. dia., 12 in face. Judson governor now running. To be replaced by one of our new engines. A. G. BROOKS & WINEBRENER.

261 N. 3d st., Philadelphia, Pa. For Sale or Lease.

A well-equipped Machine Shop and Foundry, in omplete running order,

Address
SUPPLEE STEAM ENGINE CO.,
Columbia, Pa. Columbia, a.e.

TOR SALE.—Complete sets of London Iron monger for the years 1878, 1879, 1880, 1881, 1882 in good condition. Price \$12.50 cash

Address WM. F. WETHERELL,

Meriden, Conn.

Special Notices.

New & Second-Hand Machinery.

1 25 in. "Frentiss. New. 1 25 in. swing B. G. & S. F. Drill. Blaidell. New. 1 25 in. swing B. G. & S. F. Drill. Blaidell. New. 1 25 in. swing, B. G. & T. F. Drill. New. 1 15 in. swing, B. G. & T. F. Drill. New. 1 15 in. Shaper. Gould & Eberhardt. New. 1 15 in. Shaper. Hendey. New. 1 15 in. Shaper. Hendey. New. 1 14 in. Shaper. Hendey. New. 1 14 in. Shaper. Hendey. Good order. 10 in. Shaper. Hewes & Phillips. New. 1 14 in. Shaper. Hewes & Phillips. New. 1 14 in. Shaper. Hewes & Phillips. New. [& Lamson. 1 14 in. Shaper. New. [& Lamson. 1 15 in. Shaper. Hewes & Phillips. New. [& Lamson. 1 15 in. Shaper. Hewes & Phillips. New. 1 14 in. Shaper. Hewes & Phillips. New. [& Lamson. 1 15 in. Shaper. Hewes & Phillips. New. 1 14 in. Shaper. New. [& Lamson. 1 15 in. Shaper. Hewes 1 15 in. Heads. New. 1 15

H. PRENTISS & CO., 42 Dey St., N.Y

For Sale.

Established 1873. Gardner Bros "Standard Savage" Fire Brick Works, situated at Eilerslie Station, Md., on Baltimore and Ohio R. R. Also on Bedford Branch of P. R. R. Has convenient shipping arrangements on both roads. Works consist of two independent plants of machinery, so constructed and arranged that they can be run separately or together. One of the buildings entirely new, erected last year. Capacity of works, over 14,000 bricksloer day. Mount Savage clay in abundance, mined on royalty, and delivered direct into works by gravity. Inclined plane and tram road, large portion of which was laid with new Tee rail last year. New artesian well, capacity over 3t barrels per hour. Also mountain stream, delivering water by gravity into tanks at works. Seven acres of land, with nine good tene meuts. Everything in first-class order for manufacturing and shipping brick direct from klins into cars. Good and growing trade established. Brick unquestionably as good as the oest made of Mount Savage clay. Statements of business done will be shown to responsible parties desirous of purchasing. Our good will and influence to go with sale. Any further information desired will be cheerfully given by

GARDNER BROS.,

Lockport, Pa.

For Sale.

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WANT East familiar branches, required, Office Will a and wood, Address

Established in 1804. Gardner Bros.' Gas Retort and Fire Brick Works, situated at Lockport Station, on P. R. R., 60 miles from Pittsburgh, Pa. The works consist of complete plant for manufacturing Clay Gas Retorts, Settings, Blocks, Tile and Fire Brick. Capacity, about roc retorts, with necessary settings, and roo,oco are brick per month. Clay and coal mined by curselves within short distance of works and hauled in wagons. Over three acres of land, with all necessary buildings, a number of tenements and town lots, P. R. has side track alongside our kilns. Good trade established. Our good will and influence to go with sale. Statement of business done will be shown to responsible parties desirous of purchasing. Any further information desired will be cheerfully given by

GARDNER BROS., Lockport, Pa. FOR SALE.

POR SALE.

One Cast Iron Vacuum Pan. Vacuum and water pumps and all attachments.
One Granulator, with attachments.
One large Mixer, with attachments.
One No. 5 Vacuum Pump.
Two Sucar Packers. One No. 5 Vacuum Pump.

The No. 5 Vacuum Pump.

The Sugar Fackers.

The Osteam Engines.

The Steam Engines.

The Steam Engines.

The Steam Filters.

The above is a portion of the Machinery for
nerly used at Baltimore Steam Sugar Refinery.

Retimore. Md. For information apply to GEO.

erly used at Baltimore Steam Sugar Refi altimore, Md. For information apply to GRAHAM, P. O. Box 193. Baltimore, Md. E. ADAM, n. e. cor. Lombard and Co. Sale at Auction.

At 12 o'clook M.

A valuable manufacturing property, situated at Taunton, Mass., formerly occupied by the Foundry and Machine Co.'s buildings, consisting of Foundry, Machine and Blacksmith Shops, &c. Also at same time and place will be sold a valuable lot of Machinis Tool Patterns, formerly belonging to the Wood & Light Machine Co. and a miscellaneous lot of patterns, formerly belonging to the Foundry and Machine Co.

For particulars apply to THE GEORGE FLACE MACHINERY CO., 121 Chambers and 103 Reade sts., New York.

For Sale.

A Steamboat. Has a capacity of 300 passen SITES & GILL.

292 and 224 South 3d st.,

Philadelphia, Pa. J. M. BADGER,

5 Dey St., Room 13, NEW YORK CITY, Dealer in

Iron and Wood Working Machinery. Large lists of both new and second-hand go for immediate delivery.

*** On May 1, 1883, I shall open a

NEW MACHINERY DEPOT at No. 40 Dey st., New York, where I shall be better prepared to serve all who may be in want of anything in my line.

SITUATION WANTED. A young man who is a thorough, practical Book-keeper and accountant, and who has filled a position as Bookkeeper, elerk and general assistant at rolling mill during the past two years, and possesses a very fair knowledge of plate-mill work, desires to secure an engagement.

Marsh P. O., Chester Co., Pa.

Special Notices.

For Sale or Lease.

A Large Two-Story Brick Factory.

former's Macnine Works, at Pearl River, N. Y., on railroad depot, 25 miles from New York City, Railroad faculities unexceptionable, on the line of the New Jersev and New York Railroad. The property contains 40,000 square feet floer space, with one 86 H. P. Engine and Boiler, 700 ft. 2-Inch line shafting and pulleys, main belts, steam heating and water pipes throughout the building. A splendid iron foundry, 70 ft. by 90 ft., with one sheling cupola with Mackenzie blewer, brass furnace, core oven, blacksmith shop, patern vaults, annealing oven, etc. The property can be bought or leased on liberal terms. For further particulars, price, terms, etc., address J. E. B. & Co.,

or Pearl River, Rockland Co., N. Y.

For Sale.

The largest stock of New and Second hand Engines, Boilers, and general Machinery in the West, Send for Catalogue. Hoisting Outfits for Coal Mining and other purposes a specialty,

WARREN SPRINGER, 195 to 219 South Caval St., Chicago.

Lathes for Sale at Low Prices.

One 30 in. x 10 ft. bed, one 17 in. x 11 ft. bed, Hewes & Phillips. One 16 in. Pond and two 13 in.

The above will be delivered in first-class order GEO. A. OHL & CO., East Newark, N. J.

For Sale.

Second-hand

DROPS and LIFTERS.

BEECHER & PECK, Lock Box 122, New Haven, Conn

For Sale.

Heavy Planer, 30 in. x 30 in. x 13 ft., with rack extensich, to plane 20 ft. Good a new, seliers & Co. Drilling and Boring Machine, 45 in. swing, back geared, saif-freed, compound tab.e—table raises and lowers by power.

Lever Shears to true 2 x 2.

Lever Shears to trim 1/2 plate.

A. G. BROOKS & WINEBRENER, 26t N. 3d St., Philadelphia.

For Sale.

Stock of Hardware, Stoves, Tinware, Queensware and Glassware,

in one of Colorado. Address one of the best and most thriving towns in E. H. WHEELER.

Wanted.

A Partner with \$5000 to \$10,000 in a Foundry and Machine Business, established in 1824. For particulars, inquire of

I. H. COLLER, Poughkeepsie, N. Y.

To Lease.

The Machinery Complete of a Plate and Sheet Mill.

Machinery modern, ready to set up, and in good order. Address THOS, R. McKILLIP, 130 Dearborn St., Chicago, Ill.

Wanted.

A man who is thoroughly posted in Builders

MelNIOSH, GOOD & HUNTINGTON,

Cleveland, Ohio,

EXPERIMENT has shown the comparative inefficiency of the lower tubes of return tubular and flue hollers. I have a patent arrangement for perfectly utilizing the heating surface of these lower tubes, enabling boilers to do larger duty without facreased size or any proportionate expense in construction. Device easily applicable to set as woll as to new boilers. I claim a saving of boiler iron and fuel and invite correspondence from boiler makers. CHARLES H. FITCH, btamford, Conn.

Wanted.

A competent Traveling Salesman acquainted with Tin Plate and Metal Business. None others need apply Address by letter only

MERCHANT & CO., P. O. Drawer 93, Philadelphia, Pa.

Wanted.

A Superintendent with from \$2000 to \$3000, to take charge of a magnetic iron ore mine in New

Office of The Iron Age, 220 S. 4th st., Phila., Pa. A DVERTISER solicits correspondence with manufacturer who is willing to make and sell Patented Tin Toys on royalty.

Office of The Iron Age, 83 Reads st., New York. A GENTLEMAN of ability and experience is open to negotiations as buyer and general manager in Hardware and Housefurnishing goods. Address

Office of The Iron Age, 83 Reade st., New York. A GENTLEMAN with some means desires to manufacture in Canada some American palented article of established excellence. No bumbug. Address

Office of The Iron Age, 83 Reade St., New York. A MECHANICAL ENGINEER, theroughly com-petent to erect and start a Wire Mill, desires an engagement.

STEEL WIRE Office of The Iron Age, \$3 Reads St., New York.

W ANTED.—Traveling Salesmen for Wisconsin, Eastern and Southern States. Must be familiar with Files and Cutlery and kindred branches. Address, giving references and salary required, which must be low, CUTLERY.

Office of The Iron Age, 33 Reade St., New York.

TOR SALE OR RENT.—A Foundry and Planing Mill at West Chester, Pa. Equipped with Iron and wood-working machinery.

Address

1693 Walnut st., Philadelphia.

Special Notices.

HENRY I. SNELL. 135 North Third St., Philadelphia, Pa.,

has just received a fresh lot of Machine Tools, Engines, &c., which he offers at very low figures. One Screw-cutting Engine Lathe, 6 ft. bed 18 in

swing. One Screw-cutting Engine Lathe, 8 ft. bed, 18 in. swing.

rew-cutting Engine Lathe, 12 ft. bed, 18 in. swing.

swing.

One Iron Planer, planes 7 ft. long 32 in. wide One Iron Planer, planes 15 ft. long 59 in. wide One Power Crank Planer, 12 in. stroke. One 11 in. Shaping Machine, traveling head. One 38 in. Upright Drill. Extra heavy. New One 300 lb. Ferris & Miles Steam Hammer. One 25 H. P. Corliss Steam Engine.
One 25 H. P. Corliss Steam Engine.
One 40 H. P. Corliss Steam Engine.
One 40 H. P. Dain slide valve Steam Engine.
One 12 H. P. vertical Steam Engine. Naylor.
One 60 H. P. Marine Boiler, suitable for tug boat.
One 25 in. heavy Endless Bed Nurfacer.
One 3 H. P. Link Motion Boat Engine.
Three Cylinder Boilers, 36 in. dia. x 30 ft. long.
One second-hand No 7 Sturtevant Pressure Blower

For Sale.

Palo Alto Rolling Mills,

Near Pottsville, Pa.,

ON THE MAIN LINE OF THE POTTSVILLE AND READING RAILROAD.

These mills are in good repair, and can be started in two days' time.
Rolls for TRails v2 to 70 lbs. per yard, and for Street Rails v8 to 70 lbs. per yard.
Guide Milt Train for Merchant Iron ¼ to v inch.
Rolls for Merchant Bar, round and square, up to

Minher of Puddling Furnaces in both mills, by Heating Furnaces, a; all with boilers attached. Also Foundry, Machine skop, Blacksmith Shops, Fron Heuse, Roll House, Carpenter and Pattern Shops, Stables, handsome Dwelling for Superincedent, 11 Tenen.ent Houses, a Brick Office, and imple grounds for stock and cinder. For further particulars address

Messrs. LEE & McCAMANT, Extrs., Pottsville, Pa.

THOS. F. WRIGHT. 1804 Race St., Philadelphia, Pa. HUGH W. ADAMS, 56 Pine St., New York.

Bargains.

One Engine Lathe, 72 in. x 17 ft. Second hand. One Engine Lathe, 30 in. x 17 ft. 6 in. New Haven. One Engine Lathe, 21 in. x 16 ft. Hement. One Engine Lathe, 24 in. x 12 ft. Perkins. New. One Engine Lathe, 25 in. x 10 ft. Perkins. New. One Engine Lathe, 19 in. x 10 ft. Pond. One Engine Latine, is in. x it. Fond.
One Engine Latine, is in. x it. Ferkins. New.
One Engine Lathe, if in. x it. Perkins. New.
One American Tool Square Arbor Fox Lathe.
One Planer, 54 x 15. White. One Planer, 37 x 9. New Haven. One Planer, 28 x 7. New Haven. One Planer, 30 x 7. New Haven. One 35-in. Drill. Prentiss. New. One 30-in. Drill. Prentiss. New. One No. 2 Lincoln Pattern Miller. Four Hand Lathes.

One Pulley Boring Machine. Engines and Boilers, all sizes. LOVEGROVE & CO.,

152 N. Third St., Philadelphia.

For Sale.

Bay State Iron Works.

The Rolling Mill and Wharf Property of the Bay State Iron Company, situated at Boston, Mass. This property is about 1/5 miles from the business center of the city, is below all bridges, and can be approached directly from the harbor by vessels carrying from 6:0 to 6:0 to 1s. It consists of a Sheet Mill, having a capacity for making from 10 to 15 tons of light sheet Iron per day. Fuddle Mill, containing 16 Double Puddling Furnaces.

naces. Skelp Mill, of a capacity of 20 to 25 tons daily of

Sheared Skelp.

Sheared Skelp.

Plate Mill, for large Iron and Ste'l Plates, of a capacity of 25 to 30 tons daily; and

Machine Shop, Black-unith Shop, Pattern Shop and Storehouse, Coal Sheds and several other and Storehouse, Coal Steens and secondarion, part of buildings.

The above is all in first-class condition, part of the three part of the companion of the comp

it now in operation, and the remainder but very recently shut down. For further particulars and for pamphlet de-For further passing property apply to scribing property apply to J. AVERY RICHARDS, Treas., 2 Pemberton Square, Hoston, Mass.

For Sale.

The Industrial Works of Shamokin, cwned and successfully carried on for a number of years by the late Wm. Brown, deceased, consisting of Foundry and Machine Shop, and a large steck of Patterns regarded as pare of the property. Boiler Shop, Blacksmith Shop and Factory for the manufacture of heavy coal screens. Well located in the borough of Shamokin, Pa., with the best facilities for shoring we real act during the state of the property. facture of neary solutions for shipping by rail, and surrounded by a district contributing all the work that a shop of that kind can possibly turn out. The works are now running, but in a very short time possession can be given. Easy terms of payment are offered to suit a purchaser of limited capital.

Offered for sale by MM. McILVAIN & SONS, Reading, Pa.

ADJOURNED SALE

ROLLING MILL.

The McShain Rolling Mill, at Rohrerstown, Lan caster County, as previously advertised in this paper, will be sold at the Grape Hotel, in Lancaster, on Saturday, April 14, 1883, at z o'clock

A. BOYD, Assignee.

For Sale.

No. 6 Sturtevant Blower and Countershaft. 6 Blake Steam Punps. Good as new. Nos. 3, 4 and 5 Phila. Hydraulic Works Steam unps.

umps.
Belt Pump for Hydraulic Press.
Belt Pump for Hydraulic Press.
Heald & Sisco Centrifugal Pump, 4-in. discharge.
Small Steam Blowing Engine.
A. G. BROOKS & WINEBRENER,
26z N. 3d St., Philadelphia.

For Sale.

To a competent Mechanical Engineer, with experience in managing Machine Shops, an interest in the Omaha Foundry & Machine Co., at Omaha, Neb. The largest and best equipped shops is Nebraska, with a splendid trade and no local competition. Address

T. W. T. RICHARDS, Omaha, Neb.

Trade Report.

BRITISH IRON AND METAL MARKETS.

[Special Cable Dispatch to the Iron Age.] LONDON, WEDNESDAY, March, 28, 1883,

Scotch Pig.-The market is quiet and prices steady, with a good business doing. One Screw-cutting Engine Lathe, 12 ft. bed, 24 in. Makers' prices are quoted as follows:

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Cleveland Pig .- The market is quiet, with unchanged prices. We quote as follows, f.o.b. shipping ports:

Middlesboro' No. : Foundry......40/5 @ 40.0 No. 2 " . No. 3 " . No. 4 Forge . . .

Bessemer Pig.-There is no change to note, the market ruling steady, with unchanged prices. We quote W. C. Hematites, in lots equal parts Nos. 1, 2 and 3, 51/@ 53/, f.o.b. shipping ports:

Blooms .- The market is quiet, with unchanged prices. We quote Bessemer Blooms, x 7', £4. 10/ @ £5, f.o.b. shipping ports.

Manufactured Iron.—But a small business doing, and the market closes quiet, with prices steady. We quote at works:

		£	26.	d.	Æ	ß.	d.
Staff.	Ord. Marked Bars	. 7	10	00			
	Medium "		10	0 (8	7	0	0
	Common "	. 6	0	0 @	6	10	0
Hoops	, 20, W. G. and over.						
6.0	Common Best	7	5	000	7	15	0
5.6	Medium	. 6	10	0 (0)	0	15	0
66	Common	. 6	5	0 60	6	10	0
Sheets	, 20 W. G. and under.						
5.0	Ordinary Best	. 0	10	0 60	10	10	io.
9.0	Common	. 7	10	060	8	0	0
Welsh	Bars		13	6 (1)	5	15	0

Steel Ralls-Are in greatly improved demand, and prices tend in sellers' favor. We quote Ordinary Sections, £4. 17,6 @ £5.2/6, f.o.b shipping ports.

Iron Rails .- The market is dull and prices

nominal. We quote Welsh, 30 th and upward, nominally, £4, 15/ @ £5, 10/, f.o.b. shipping Old Ralls .- The market is steady. We

quote Old Tees, c.i.f. New York, £3. 10/ ton and Quincy sold at 21/2; Michigan Cen-@ £3. 12 6, and Old D. H's, same port, tral, 174; Central Pacific, 11/4; Denver, £3. 15/ @ £4.

account for delivery during next 3 months at San Francisco. We quote Heavy Wrought, c.i.f. New York, £3. 5/ @ £3. 10/. Bessemer Crop Ends, run of the mill, are quoted 58/@ 60/, f.o.b. shipping ports.

Copper.-A light business has been done during the week, the market closing quiet, with prices steady. We quote Best Selected, £70. 10/ @ £71. 10/, and Chili Bars, £65.5/ @ £65. 10/

prices are firm. We quote Straits Ingot, spot, £97 @ £97. 10/, and futures, £97. 15/

quotations are nominal. We quote:

Tin Plates. 10 x 14, 1st qual, Charcoal .. 22/ @ 23/ " 2d " " ...20/ @ 21/
" 1st " Coke....18/ @ 19/
" 2d " "15/9 @ 16/ 15/9 @ 16/3 Spelter.-The market is dull and prices

weaker. We quote Ordinary, at shipping ports, £15. 5/@ £15. 10/. Lead-Is quiet and unchanged. We quote Common English Pig, £13. 10/ @

£13. 15/ Freights.-Steam from Glasgow to New York, 5/ @ 6/, and Liverpool to New York, 2/6; Liverpool to Philadelphia, 3/ @ 4/;

Office of The Iron Age, Wednesday Evening, March 28, 1883.

demand for money at a high rate of interest ent prospect of a better foreign demand. has operated to restrict trade in almost According to the Custom House rep New York the decrease is 3 %.

been considerably in excess of the business year: for the corresponding week last week, and for the corresponding week last week, and new buyers are arriving every day. There are now indications that the worst is nast. are now indications that the worst is past, the prevalence of tight money having drawn toward the financial center large amounts as well as from foreign countries. payment of interest on the 4 % Government bonds due April I brought out a considerable amount of funds. The demands from the interior are less urgent, and totals of this week, compared with that of

was issued yesterday :

TREASURY DEPARTMENT, WASHINGTON, D. C. March 27, C.

Notice is hereby given that on Wednesday, April 4, 1883, and on each of the following Wednesdays, United States bonds embraced in the 120th call will be redeemed at the Treasury Department in Washington to the amount of \$5,000,000, with interest to the date of payment. * * * Parties the date of payment. * * * Parties transmitting bonds for redemption should address them to the 'Secretary of the Treasury, Loan Division, Washington, D. C.," and the bonds should be assigned to the "Secretary of the Treasury, for redemption." Where checks in payment are desired in favor of any one but the payce, the bonds should be assigned to the "Secretary of the Treasury, for redemption for account of "(here insert the name of the per-") (here insert the name of the pershould be made payable).
(Signed) H. F. French,

Acting Secretary. The severest pinch for money on call occurred on Thursday, when 1/8 of 1 % interest and commission was paid, but 10 @ 12 % would be a The position of the banks has fair average. been strengthened by the contraction of loans-a process which, as concerns the mercantile classes, in some instances entails much hardship. Taking the country at large, the number of business failures reported is 196, which is a decrease, compared with the previous week, but more than occurred in the corresponding week in the last year, and some of the amounts are uncomfortably large.

On the Stock Exchange the week has been dull almost beyond precedent, mainly in consequence of active money, which served to prevent outside buying, but stocks have been held with considerable firmness. On Friday the feature was an advance in the Northern Pacific, based upon reports that the proceeds of recent large bond sales were to be used in retiring a portion of the preferred stock. On Saturday a sharp decline in Central Pacific had a depressing influence-On Monday favorable traffic reports imparted some strength, but prices were only fractionally changed. On Tuesday there was a partial recovery, despite a severe raid on Central Pacific, which was actively traded in, and under free sales declined to 741/2 To-day the announcement that the Treasury will pay off the 120th call for bonds maturing May 1, at the rate of \$5,000,000 a week, had a favorable effect. To-day stocks were dull, but strong, in the belief that the period of financial stringency has run its course. The feature was a general advance on the active list equal to 1/2 @ 21/2 % over the closing prices of the provious day. Burling-14 : Lake Shore, 1 : Northwest, 114 : Saint Scrap—Is in light demand and prices Paul, 114; Union Pacific, 1; Wabash preare steady. We hear of a sale for American ferred, 114, and Rochester and Pittsburgh,

The posted rates for bankers' sterling are \$4.81 1/4 for 60-days and \$4.84 for sight. further amount of £100,000 was withdrawn from the Bank of England yesterday, for shipment to New York.

In reference to the crops, a Chicago telegram says that lands have been largely plowed, but seeding is yet very slow.

A statement has been prepared at the Tin.-Business continues moderate and Treasury Department which shows the total estimated receipts of the Government for the fiscal year ending June 30, 1883, under the operations of the new tariff act, to be Tin Plates -A small business doing, and \$405,000,000. Of this amount \$220,000,000 is the estimated revenue from customs, \$143,500,000 from internal revenue and \$41, 500,000 from miscellaneous sources. revenues for the fiscal year ended June 30, 1882, were as follows: From customs, \$220,410,000; from internal revenue, \$146, 497,000; from miscellaneous sources, \$36, 618.000: total, \$403,525,000.

Specie payments in Italy will be resumed April 12, the Treasury having collected for this purpose £16,690,000 in gold, of which per cent. New York furnished £2,920,000.

East-bound shipments from Chicago for the week are the heaviest on record for so brief a period, excepting the first week in bers street, New York, our general agents February, 1882, and the movement is supposed to have been stimulated by liberal rebates, in anticipation of the opening of navigation. The export movement of wheat During the past week a continued active and produce is quite moderate, with no pres-

According to the Custom House reports, every department. The occurrence of Good the importations of specie and bullion at this Friday also tended to limit the volume of port during the week ending March 23 were transactions. According to the returns of \$2,570,753, consisting of \$2,375,062 in gold the Clearing House, the gross exchanges in and \$195,691 in silver, as against a total of the city declined 39 %, compared with the \$111,511 for the week ending March 24 last corresponding week in 1882, and outside of year. The importations since the 1st of January compare as follows with the move-In dry goods the jobbing movement has ment during the corresponding period last

-Since January 1-\$412,442 Total..... \$4,152,660

stands at \$5,455,075 below, against \$3,338,100 above the surface of the work through

*Deficiency.

United States bonds were firm and prices

U. S. r's, '8r, continued at 115 Bid.	Asked.
	11.76
Section 402 Section Continued to the Property of the Continued Section 1997 Section	11174
to D. 4 S. Igor, Fellistered Tink	T1-1-19.
U. S. 4'S. 1957, COULON	120 %
U. S. per cents	104/8
U. S. Currency r.s. v	_
U. S. Currency o's, 1547	
U. S. Currency e's, 1808	
U. S. (urrency 6's, 1'00	

State bonds were much neglected to-day. Alabama, Class A, advanced 11/2 1 to Sc, and Arkansas 7's to 494.

MINING STOCKS.

American Flag

The closing quotations for mining stocks

	A I stand		10
	Amie	24	25
	Alice	2.00	2.95
١	Alt. Mont	2	a
	American Coal Co		6ox
	Belle Isle		Sico
	B. H. & E n	34	5/4
	Big Pittsburgh	2.6	****
	Bradshaw		32
	Climax	9	713
	Con. Imp	0	
	Con. Va.	* * * *	9
	Chrysolite	49	50
	Cantral Asia	8.70	1 25
	Central Ariz		50
	Cherokee	3	4
	Darango		9
	Dunkin		3.5
	Pecatur	0	7
	Eureka Con		6
	E. Oregon	5.3	80
	Elko Con	8.7	13
	Goodshaw		8
	Green Mountain	95	80
	Gold Stripe	7	9
	Harlem	1.45	1.50
	Hukill	10	18
	Horn Silver		
	Hibernia	7121	73%
	Hortanae	3	***
	Hortense	XX	1.3
	Independence	7.5	6.6 4 8 1
	Iron Silver	2 85	2.93
	Lacrosse,		13
	Leadville Con	713	7.4
	L. Pitts	63	
	L. Chief		4.2
	Mexican	3.00	
	Navajo	3.75	4.10
	North'n Belle	956	
	Ophir	3.50	
	Ontario	21	27
	Ori. & Mil	15	
	Pipe Line Ctfs	9534	9555
	Rappahannock		
	Robinson Con		9
	Rising Sua	7.2	73
	Rising Suu Red Elephant	4	5
	Slower Gerado	5	****
ſ	Sierra Grande	R.75	r.So
	Standard	0	
	Silver King	1-1-1-1	1.2
	Satro Tun	19	20
	South Pacific		S
	St. L. 1 & 4	2	4
	St. L. 2 & 1	Y	****
	Sorona,Con	50	5.0
		4.	-

GENERAL HARDWARE.

The state of business continues much as it was last week. While by no means as large as it ought to be, the volume of trade is greater than it was some weeks ago, and from some sections we hear good reports. No changes in prices of any importance have occurred during the week.

Nails are going off very fairly-indeed, we know of no article in the Hardware or Iron trades that is selling so freely-as far as amount of sales is concerned, but without any improvement in prices, which we still quote \$3.15 for ordinary lots, with concessions for desirable orders. Stocks in this market are fair. As will be seen by our Pittsburgh dispatch, the Western Nail Asscciation have voted to postpone until April 21 the stoppage decided on at their previous meeting. This was done on account of the scarcity of Nails in the hands of both jobbers and manufacturers.

James Swan, Russell & Erwin Mfg. Co., ole agents, is manufacturing a new Patent Screw-Driver, sold in sets of four blades, 3, 4. 5 and 6 inches, with handle. The blades are round, with square, tapered end, fitted to a plug in the handle, which prevents it from turning. They can be readily taken out and a shorter or longer blade used, as may be required. The end being tapered, a slight jar will at any time loosen the blade from the handle, but it will remain fast while in use. They are forged from steel and fully warranted. Price \$15 a dozen ; discount 40

We have received the following notice:

HILLABORO, Ohio, March 26, 1383.

To the Trade: We have this day appointed Bells. Orders will receive the same attention and be filled at same prices as if sent to us direct. C. S. Bell & Co. Hillsboro, Ohio.

The Bolt and Rivet Clippers made by Chambers Bros. & Co., Philadelphia, have had a large sale, on account of the ease and convenience with which they do their work, together with their small cost. The manufacturers claim that it will cut-off all the bolts in a carriage in less than one-tenth the time two men can do it in the old way, leaving the end of the bolt in such condition that the nut can, in many cases, be run off and on with the fingers alone, proving that the thread is uninjured. They have recently added a new "Special No. 4," to cut 3/4-inch bolts. This tool is extra strong, and designed especially for the use of manufac-\$958,212 turers of portable engines, egricultural The bank return for the week shows an implements, boiler makers, car-builders, &c. from private capitalists and corporations, increase of \$1,315,800 in reserve, which now It cuts a 4-inch bolt or stay-rod 1/4 inch above at the same time last year, and \$1,706,- which it projects, thus always leaving 1/2 inch 775 above at the corresponding date in 1881. for riveting. The following are the list

25 and 15 per cent.

more satisfactory or useful catalogue than that just issued by the A. F. Shapleigh & Cantwell Hardware Co., of St. Louis. It is 30% a large volume of 1028 pages, 9½ by 12 inches, and contains a complete line of General Hardware goods, very fully and satisfactorily illustrated, and in almost every case accompanied by price lists. In leed, case accompanied by price lists. Indeed, firm. Straits Ingot, spot, £97 @ £97. 10/, Door Locks is the only important line and futures, £97. 15/@ £98. of goods in which the prices are left blank. It is divided into four departments, of which Mechanics' and Edge Tools occupy from page 3 to 208; Builders' Hardware, from page 209 to 658; Cutlery, Pocket and Table, Shears, &c., page 659 to 738; and Miscellaneous Hardware, Agricultural Tools, Guns and Revolvers, from page 739 to 1028. In paper, printing, binding, illustrations and all the details of mechanical execution, this book is as good as could be desired, and can not fail to prove of great value to every Hardware man who may have a copy. It is sold for \$10, or a copy will be sent free to any merchant ordering \$100 worth of Shelf Hardware. See advertisement on page 28.

The Cincinnati Stamping Co. have issued pages of miscellaneous goods.

We call the attention of our readers to the Adjustable Window Screen advertised on page 32, and which is made by Edwin Louderback & Co., No. 413 South Fifth street, Philadelphia. The frames of the Screen are so made as to permit an extension of 21/2 inches on each side, so as to fit the groove of any window to which the Screen approximates. The frames are of black walnut and the wire-cloth is well stretched and secured. They are made in sizes rang ing from 22 inches to 43 inches in length closed, each size having 5 inches of extension.

IRON.

American Pig.-Dullness is the characteristic feature of the whole Iron market this week. Transactions are very few, and a feeling of caution and a distrust of the future prevent buyers from anticipating their wants, and they are consequently contracting for future delivery even less than last week. This is true of favorite brands, last week. This is true of favorite brands, while, of course, it applies with greater force to those less sought for, which are sold with From London we are cabled to the following difficulty, and ordinarily by concessions in We still quote for Standard brands Foundry No. 1, \$24; Foundry No. 2, \$22; Gray Forge, \$19.50 @ \$20.50.

Scotch Pig.-The stock on hand, while moderate, is quite equal to the domand, which is far from large. Arrivals go very generally into consumption on previous purchase. We on the basis of \$4.80 for Common Domestic, quote Eglinton, \$22 from yard; Carnbroe, \$22 from ship; Glengarnock, \$22 @ \$23 from ship and yard; Dalmellington, \$21 @ \$22 from ship and yard; Summerlee, \$24.50 from ship; Coltness, \$24.50 @ \$24.75 from ship; Gartsherrie, \$25 from yard; Langloan, is firm at 61/4 @ 63/60 \$24.50 from ship.

Bar Iron.-Nothing of importance has transpired since our last report. There has been a fair trade in small lots, and the market is, if anything, somewhat stronger. A slight improvement in consumption is noted, and inquiries for heavy orders are gradually becoming more numerous. Prices for Refined Iron at the mills are firmer, and manufacturers decline to receive orders for large lots at present prices, except immediate delivery. Altogether, the position of the market is thought to be much more favorable than it was a few weeks ago. repeat last week's quotations. Refined Bars, at the mills, \$2.10 @ \$2.20 and \$2 for Common; from store, \$2.40 @ \$2.50 for Refined and \$2.20 @ \$2.30 for Common.

Steel Rails.-The week has not been marked by anything noteworthy. Sales are made in moderate quantities at \$39 at Eastern mills, at which price we hear of the sale of 5000 tons.

Old Rails.-We hear of no transactions and quote, nominally, \$23 @ \$24.50 for T's, according to section, quality, delivery, &c.

Scrap Iron .- The market continues quiet and unchanged. There is little or no demand for yard Scrap, which is quoted at \$26.50 @ \$27; ex-store is held at \$26, and ex-ship at \$25, but buyers are not disposed to meet the prices asked.

METALS

Copper.-There are rumors that, including what we mentioned in our last, some 5000 tons, all told, have of late been taken of Lake Copper for export at 16¢ and less, dealers) for Rags, &c., are as follows: ever may have been done in this way, however, it certainly has not strengthened our market, which has become more demoralized than ever, manufacturers being apparently determined not to buy a pound of Cop-per beyond absolute immediate requirements, being under the impression that they will lose nothing by temporizing. Hence, not over 102,000 lb were sold that we hear of, the closing quotations being for Lake Superior, 1714 ¢ @ 1738¢; "Anchor" brand, 1614¢; "Star" brand, 1614¢, and Baltimore, 15%¢ @ 15%¢. London yesterday came unaltered—£71 Best Selected, and £66 Chili Bars. To-day we are called from there to Bars. To-day we are cabled from there to the following effect: "Light business during the week, market closing quiet, with a prices steady. Best Selected, £70. 10/4 and Chili Bars, £65. 5/4 disappointed by the spring opening prices. They quote bottoms, 31¢ The Delaware, Lackawanna and Western In the Anthracite Coal trade the market Hdw, pkrs. 30 Firearms, cs. 3 Scales, cs. 4 Cartriages, cse 4 Cartriages, cse 4 Cartriages, cse 5 There is, however, a fair trade in progress. Nais, kegs. 30 Firearms, cs. 30 Firearm

Segment Sheets, 33¢; Fire-Box, do.,

Tin .- The warket has been moderately active at $21\% \phi$ @ 22% large lines Straits, and $22\% \phi$ Lamb and Flag. London wired Straits last night £97, while to-day we hear that business continues moderate and prices

IMPORT INTO THE UNITED STATES First - months of fiscal year)

(2 200 / 2000		1883
Re-export	Cwts. 144,051 532	Value, \$3.820,365 34,430
Net import Or tons	7,176	\$3,805,835
Re-export	Cwts.	Value \$2,550,568 552,696
Net import Or tons	82,406	\$1,997,874

Tin Plates — Have been very quiet, closing at the quotations below, for ordinary brands, large lines, & box : Charcoal Bright, \$5.87½ @ \$6.12½; do. Ternes, \$5.25 @ \$5.37½; Coke Tin, \$5.12½ @ \$5.37½, and do. Ternes, \$4.87½ @ \$5.00. There was a The Cincinnati Stamping Co. have issued a catalogue of 120 pages, giving price list and illustrations of their manufactures, viz.: Japanned Ware, Plain Tinware, Plain and Retinned Deep Stamped Ware, Stamped Tinners' Trimmings, Tinners' Assortment Trimmings, Tinners' Assortment Trimmings, Tinners' Stock, Spoons, and 14 pages of miscellaneous goods.

\$5.37½; Coke Tin, \$5.12½ @ \$5.37½, and do. Ternes, \$4.87½ @ \$5.00. There was a rumor to-day that a clerical error in the section relating to Tin Plates, which has been discovered, will leave the duty as it was in the old tariff. Liverpool was quite strong yes-erday—Coke at 16/@ 16/6, and Charcoal, 18/@ 21/. We are told per cable to-day from London that a small business is doing and that guotations are nominal. doing and that quotations are nominal.

IMPORT INTO THE UNITED STATES.

Re-export	Cwts. 2,545,391	Value. \$10,389,356 24,495
Net import	#,539,889 #20,995	\$10,364,861
le-export	Cwts. 2,296,591 3,220	Value, \$9,402,151 14,654
Net import	2,293,978 114,669	\$9.387,497

Lead .- Quite a change has again occurred the Lead market, 500 tons Common Domestic having sold at 4½\$\psi\$, while for Correcting Lead a bid of \$4.60 cannot be obtained. St. Louis is 4½\$\psi\$ for both Hard and Soft. The outlook, for the moment, has Soft. The outlook, for the moment, has become quite gloomy once more, so that, in the present disposition of the trade, the market may drop off another fraction any day. The enormous production going on and the little model in writer that the control in the second of little confidence which the metal inspires bode no good as regards values in this mar-ket. The sooner, therefore, the drop occurs, From London we are cabled to the following effect: "Lead is quiet and unchanged; Common English Pig, £13. 10/@£13. 15." Manufactures are quoted as follows: Lead Pipe, 63/¢; Sheet Lead, 7½¢; Tin-lined Lead Pipe, 15¢ ? lb, and Blook-tin Pipe, 45¢, less the usual discount to dealers.

Spelter and Zine .- The reviving demand while Silesian is nominally held at 51/4. We are cabled from London this afternoon as under: "The market is dull and prices as under: weaker; ordinary, at shipping ports, £15. 5/@ £15. 10/." We quote Bertha Refined 8½¢ and Bergenport 9½¢, while Sheet Zinc

IMPORT INTO THE UNITED STATES (First Seven Months of Fiscal Year.)

		883
SpelterSheet zinc	Pounds.	Value, \$504,097 82,654
Total Re-export, sheet zinc	14.761,282 3.531	\$586,759 188
Net import Or tons	34.757.751 6,588	\$586,571
Spelter	Pounds. 8.238.013 2,005,132	Value. \$324,811 90,799
Total Re-export, sheet zinc	10,243,145	\$415,610 481
Net import Or tons	10,332,120	\$415,229

Antimony .- A moderate jobbing demand has prevailed at 10¢@ 10¼¢ for Hallett, and 11¢ @ 11¼¢ for Cookson.

OLD METALS, PAPER STOCK, &c.

The purchasing prices offered by dealers

THE C SHIP ADMINITION !			
Copper, heavy	\$ 14	9	0.84
Copper Bottoms		60	.13
Yellow Metal	.00	25	.83
Brass, heavy	.00%	ä	.00
Brass, light	.0814	œ.	
		20	
Composition, heavy	.34%	9	
Licher, Michaly	.04	6	.04
ARM LICENSES	.0316	9	.0);
Kalland	.03	0	
rewirt, Mo. L	.14	@	.15
Fewber, NO. 2	.20	3	
Wrought Iron P ton.		500	
Light	12.00	(18)	13 00
Stove Flate	12.00	0	
machinery do		68	15.00
Grate Dars	4.50	(1)	
Electrotype Plates P D.	.04	0	.04
Stereotype Plates "	.05	600	
Small type	.05	40	.03
The prices current (price	es paid	by	loca

demicial you was do accident and acc	
Canvas, Linen # fb	. 34c. @ 4 C
White Cotton, New	314C. (6
No. 2	214C. un 214C.
White, No. 1	4 C. @ 416C.
" No. 2 "	8 C. 60 216C
Seconds	14c. @ 1 c.
Soft Woolens	6 c. @ 7 c.
Mixed Rags "	13/c. 60 a C.
Gunny Baggiag"	1 /2 C. Co
Jute Butts	1140. @ 1140.
Vantualin Dawning	
Kentucky Bagging	@ 3%c.
DOOK STOCK	1 %C. @ 2 C.
NOWSIMINORS	1 C. @
waste raper and acraps	72 C. C
Kentucky Bale Rope	3 20. 65 4 C.

COAL

In the Anthracite Coal trade the market

It is a long time since we have seen a @ 32¢; Braziers', 30¢@ 36¢; Circles, 33¢ the price of Scranton at Hoboken 10¢ & short introduction of the price of Scranton at Hoboken 10¢ & short introduction is supported by the A. F. Sharloigh & 30¢; Segment Sheets, 33¢; Fire-Box, do., with last year, other sizes remaining un-changed. It is well understood that actual changed. sales by all the producing companies, with rare exceptions, are 10¢ @ 15¢ below the circulars, the variations depending on quantry and the size which it is most convenient to deliver. Respecting mining operations, the chances are that there will be a stoppage of six days in every month between now and August 1st, but nothing is yet positively determined.

Eastern trade is quite brisk, with freight \$1 to Boston and 75¢ to Providence. Bituminous continues very dull at about

\$4.50 @ \$4.75.
The total Anthracite product last week was 450,823 tons, which is, as compared with the same week last year, an increase of 58,948 tons. The product for the year so far is 4,492,570 tons, an increase of 411,160

The Pennsylvania Railroad Co. are fast extending their tracks up the valley of the Schuylkill, on both sides of the river, into the Anthracite Coal regions.

EXPORTS

Of Hardware, Iron, Machinery, Metals,
Ac., from the Port of New York, for the
Barbour Broz.
Mach'y, case, 1
Boker Hermann & Co.

,	
week ending March	1 97, 1883.
Hamburg.	Quan, Val.
Quan. Val Pm.,gls.r,387,445 \$114,698	Mach'y, Clocks, pkgs. 5 85 Ag. imp., pkgs 21 128
Rifles, case 1 210 Clocks, pkgs 46 4.495	Revolvers, cs. 2 67
Hdw., pkgs 21 730 Ag. imp, pkgs 412 7,447	Safes 3 150
Firearms, cse 1 230 Sew. ma., cs 826 15 908	Clocks, cs 7 489 Sew. ma., cs., 2 70
Mach'y, pkgs. 5 346 Mf. ircn, pkgs 578 1,468	Pasages.
Dutch East Indies.	Ptim. gals 60,766 4,406
Ptlm., gals.549,500 61,660	Corunna.
Rotterdam.	Ptlm., gals 51,250 4,613
Pumps, pkgs. 27 1.773 Hdw., pkgs. 13 735	British Australia.
Scales, cs 5 94 Copper, cks 18 3,550 Wringers, cs 30 1,250	Ptim., gals 63.940 8,603 W. mills, pgs. 36 957 Clocks, pkgs. 100 1,700
Bremen.	Mf. fron, pkgs 69 2,524 Pumps, pkgs. 31 1,894
Ptm.,gls.1.536,284 192,285	Nails, Cd 210 2.092

Ag. imp..pkgs 43 1,724 Razors, cs... a Pig. prss's .pgs ii Mt. iron, pkgs 8 Hdw., pkgs... 47 S. Foliers, cs. Cutiery, cs. Pistols, cs. Pistols, cs. Hdw., pkgs. ...2 Sew. ma., cs. Mach'y, pkgs. Scales, bxs. Arms, cs. Wringers, cs. Wringers, cs. Liverpoot.

Cuba. Mach'y, pkgs. Hdw., pkgs. Spikes, bxs... Saws, cs... locks, pkgs.. 3 Hull.

f, iron, kgs. comp , kgs. g, imp.,pkgs 240 g, imp.,pkgs 240 re, cs. W. mills.pkgs. Bristol. Mf. iron, pkgs 3 215 Ag. imp.,pkgs 562 9 900

Havre, London.
Ag.imp., pkgs 268 2, 706
Chocks, pkgs 269 9,772
Revolvers, cs. 4 1,731
Ptim., gals., 725,767 67,923
Hdw., pkgs. 275 6,275
Pumps pkgs. 7 470
Sew. ma., cs. 25; 7,172
Cutlery, cs. 5 47
ron safe. 1 380
dght.rods, cs. 8 270
dachly, pkgs 270 London. Mach'y, pkgs. Ag. imp.,pkgs Hdw., es..... Cop., carboys 10 Rouen. Rosen, Rosen, Rosen, Iron tanks... 4 100 Ptlm., gals.256,655 18,000

Order

Iron.

Cases, 21
Baring Bros. & Co.
Wire rods, coils, 36,

9,8 Rods, bdls., 12,059 nd, Parsons & Co.

Am. Meter Co.

Hayti Kastrup. Hdw., gala...11,135 1,261 Hdw., pkgs... 9 133 Mach'y, pkgs. 11 544 Mf. iron, pkgs. 34 132 Zinc, plates... no 51 Ptim., gals. 198,407 16,870 Elainore. Ptlm., gals. 338, 100 20,536 Antwerp. Brasil. Pt'm., gls...35,088 3,881 Hdw., case... 1 28 Cartridgs.,cse 1 11

Glasgow.

Newconstle.

Exmouth.

Leith.

Hdw., pkgs... 4 380

Canada.

Guns, case.... 1 157 Spigliron, t'ns 13 350

Newfoundland.

Neva Scotia.

Ptim., gals...2080 380

New Brunswick.

British Guiana. Ptlm., gals...5000 650

British Possessions

in Africa.

Ptlm., gals. 56,850 8,198 Ag. imp.,pkgs 136 2,272 Revolvers, cse 1 50 Scales, cs. . . 4 99

British West Indies,

Mf. iron, pkgs 41
Sew. ma., cs. 8
Hdw., pkgs 30
Firearms, cs. 3
Scales, cs. 4
Cartriages, cse 1
Fonatain 1

44

33

330

Hdw., pkgo...

Ag. imp.,pkgs 22

Sew. ma., cs. 35 1,814
Tacks, bxs. . . 5 87
Ptlm., gals.,480,100 38,400
Clocks, bkgs. 4 41
Hdw., pkgs. . 70 1,411
Guns, cs. . . 4 508
Ag.imp.,pkgs. 47 2,301 Bo Bond, Parsons & Co. pig, tons, roo Brown Bros. & Co. Rods, coils, 162 Burple J. & F. Bars, sco Bundles, 1,144 Coddingron T. B. & Co. Sheets, bulls, 182 Bundles, 275 Crocker Bros. Mexico. Pumps, pkgs. 21 Revolvers, cs 6 Cartridges, cs 58 Nails, cs 16 Nails, cs . . . 16 Clocks, pkgs. 44 Blowers . . . 3 Nails, kegs . . . 26 Jour.brsses,bbls 2 Ptlm., gals. 30, 190 Tubing, pcs . . 65 Hdw., pkgs... 15 341 Mach'y, pkgs... 15 3,9:1 Ag. imp., pkgs 21 426 Sew. ma., Cs... 98 1,971 Spiegel, tons, 1,069 Duval H. R. Ptlm., gals. 117,300 9,376

Trusa, 1
Foulke & Co.
Old iron, bdls., 52
Hanmore J. W.
Wire netting, rolls, 10
Iron Clad Mfg. Co.
Iron blanks, cs., 237
Iron blanks, bdls., 494
Mdse., cs., 12
Lang W. B.
Lowmoor iron, bags,
454
Lowmoor iron, bdls.,
40 Tubing, pcs. 65
Saws, case . 1
Mach'y, pkgs. 372 16,0
Mf. iron, pkgs. 155 9,6
Sew. ma. cs. 188 4,5
Tinfoli, cs. 4 1.
Scoles, pkgs. 5 1.
W. rope, pkge. 1 4
Arms, case . 1 7
Nails, kegs. 1 6,1
Copper, cs. 2
Cop., sheets. 4
Water closets, 14
Tacks, cs. 2 6,105 Lowmoor iron pi'tes, Tacks, cs.... 2 46 Hdw., pkgs... 215 4,304 Lee Jas. & Co. Ecuador. Mf. iron. pkgs 260 Cop g'ds, cse 2 Boiler.

Lee Jas. & Co.
Pig. tons, 400
Lundberg Gust,
Wire, cails, 906
Bars. 3,458
Masury J. W. & Co.
Oxide, cks., 17
Merchants' Dis. Co.
Beams, 46
Channels, 65
Morton, Bliss & Co.
Channel iron, bars, Boiler...... 1 440
Ptlm., gals...3500 521
Mf iron.pkgs 71 520
Hdw.,cse.... 1 115
Mach y, pkgs. 857 37.841
Copper still... 1 1,035 Central America. Per. caps, cs. 2 22 Cutlery, cs... 22 754 How., pkgs... 28 445 Nails, kegs... 61 335 Rifles & b'ynt's 40 5,494 22 Oliver Wire Co.
445
445
45
335
Spiegel, Cs., 300
Williamson Jas. & Co.
190
83
Wood, Niebuhr & Co.
Wire rods, coils, 48 Yellow metal sh'thing, ca. 3 Scales, cs.... 4 Chains and anchors, pkgs, 10 teel, bdls.... s Order, Bess, wire rods, coils, Pumps, pkgs. Iron, bdls.... Br. goods ·4578

FOREIGN TRADE MOVEMENTS. The following is a summary of foreign trade movements during the past week: IMPORTS.

Since Jan. 1 ... \$99,446,611 \$114,707,967 \$109,903,344

Quan. Val Pintols and re Quan. Ag. imp.,pkgs 194 6 1,285 35 17 631 68 746 55 22,825 Cop. g's., cse. Pumps, pkgs. Ag. imp..pkgs R.R. bars.... Sew. ma., cs.. 10 Ptlm., gals. 10,000 Hdw., pkgs.. 14 Mach'y, pkgs. 65 Cutlery, cs... 2 British Honduras Ptlm., gals....2903 316 Cadiz. Clocks, pkgs. 17 444
Ag. imp.,pkge 125
Brass g ds, cs. 388 23,368
Hdw., pkgs... 4 112
Arms, case... 1201 Lussinpiccolo. Ptlm., gals.450,000 39,00 United States of Colombia. Genea. Mf. iron, pkgs 886 Hdw., cs.... Hdw., pkgs... Cutlery, cs... 8, m. n'dls.,cs. Clocks, cs... Trieste. Ptlm. gals 228, for 13,000 Cartridges, cs. Firearms, cs... Sew. ma., cs... Japan.

Locomotive... x Rivets, kegs... 12 Spikes, kegs... 15 Zinc, cks.... 4 Mach'y, pkgs... 8149 Scales. cs... 25 Nails, kegs... 85 Shot, cs.... 10 IMPORTS

Order, Coiled rods, bdls., Hardware. Pig iron, tons, 200 Sleets, 600 Sheets, bxs., 13 Galv. wire, colls, sci Hdw., cutlery a guns, pkgs., 117 Cutley & Bro. Cutlery. Cutlery, cs, 4
Field, Alfred & Co.
Mdse., cs, 4 Fola

Spiegel, ag., 3-1. Spiegel, lot, 1 Wire rods, coils.6,289 Wrought, beams, 67 Channels, 12 Angle, pieces, 2 Rods, bdls., 24,613 Plates for Canada, m H. & D. Folsom H. & D.
Guns, cs., 4
Graef Cutlery Co.
Chalus, cks., 4
Mdse, cs., 4
Hartley & Graham,
Guns, cs., 11
Huermann Wm.
Machy, cs., 6
King Hezekiah,
Casks, 4
Kirsch —,
Arms, case, 1 Scrap, tons, 200 Wire, bdls., for Can-Wire, bdls., for Can-ada, 123 Bars, bdls., for Can-ade, 7,703 Bundios for Canada, 1,066 Sheets, bdls., for Canada, 25 Wire rope, colls, for Canada, 4 Tubes for Canada,

Kirsch — Arms, case, z Lefferts Marsball, Wrought pan, z Livingstone Morris, Nails, bags, 1co Moore's Sons J. P. Guns, cs., 3z Moss F. W. Files, cks., s Merchants' Dis. Co. Archants' Dis. Co. Tubes, bdls., for Canada, 26 Rod iron, bdla., for Canada, 56 Bar iron, bdla., for Canada, 1,506 Steel.

Castings, 2
Castings, cs., 6
Pook & Hunt,
Manhole doors, 24
Phipps & Train,
Mach'y, cs., 22
Schoverling,
Gales,
Guns, cs., 3 Cases, 27
Baring Bros & Co.
Wire. colls, 18,98.
Brown Bros. & Co.
Wire rings, 3,000
Packages, 180
Carey & Moen,
Wire, bdlls, 394
Bundles, 160
Box, 1
Landenburg, Thalms Guns, cs., 8 oville Mfg. Co. Mdse., cs., 4 Mdse., cs., 4
Struller, Lau & Co.
Guns, cs., 9
Taylor Thomas,
Mdse, cs., 3
Vom Cleff & Co.
Mdse., case, t
Wlebusch, Hilger & Co.
Chains & Ironware,
pkys., 56 urg, Thalmann

Box, 1 Landerburg, Thalman & Co. Wire, bdls., 191 Bars, pigs., 44 Bars, 259 Wire, rings, 200 Mayer, Strouse & Co. Casks, 17 Melhaney W. H. Hails, 1, 290 pkgs., 56 Witte John G. & Bro. Cutlery, cs., 3 Rails, 1,570 Moss F. W. Bundles, 22 Bars, 46 Wagner W. F. er. Cases, 10 Fry pans, bdls., 21 Packages, 6 Gun barrels. cs., 13 Chaius for Canada,

Abbott Jere & Co.

Wagner W. F. Bundles, 219 Bars, 83 cks., 12 Bolts and nuts for Canada, cks., 39 Anchors for Canada, Order. Bundles, 878 Galv. wire, cks., sco Crop ends, kg., 675,-Rivets for Canada, Files for Canada, Wire rods, colls, 13,cks., s ases for Chicago, 6 olts, kegs, s es for Canada, 13 Wire, coils, 1.0. Strips, cks., 25 Forgings, 77 Arm , cs., 9 Iron pots for Turk's Island, 558

Camp ovens for Turk's Island, 242 Cutlery, case, 1 Bands, 185 Aikman Jas. & Co.
Tin plates, brs., 441
Behm. Meyer & Co.
Tin slabs, 945
Bond, Parsons & Co.
Tin plats. brs., 2,185
Carter, Hawley & Co.
Tin plats. brs., 2,185
Carter, Hawley & Co.
Tin slabs, 528
Constaneau L. & Co.
Zinc. bkss., 76 Zinc. pkgs., 16
Downing, Sheldon & Co.
Tin plates, bxa., 100
Foote Emerson,
Nickel alloy, cs., 10
Hall Wm. & Co.
Tin plates, page 100 Tin slabs, 1,239
Katz Bros.
Tin slabs, 2,648
Kirsch
Wrought tin, cs., 4
Lalance & Grosjean,
Mdso., cs., 2

Mdse., cs., s Lawrence, Johns Lawrence, Johnson & Co.
Old meta!, pkgr., so
Lamarche's Sons H.
Rolled zinc, cks., 40
Zinc thread, case, 1
Macy's Sons Josiah,
Zinc oxide, bbis., so
Merchants' bis. Co.
Gun caps, cs., 12
Morris L. W.
Leaden cylinders,

Phelps, Dodge & Co.
Tin plates, brs., 13,344
Antimony, cks., 49 Tin ingots, 396 Black taggers, bxs., Stephani A. & Co.
Lead capsules, cs., 8
U. S. Stamping Co.
Tin plates, bxs., 306
Winter & Smille.
Tin slabs, 516
Wittemann Bros.
Metal capsules, cs., 9
Order. Ord

rder,
Tin plates, bxs, 865s
Tin slabs, 1,803
Tin ingots, 1,803
Tin ingots, 1,803
Tin ingots, 1,836
Zinc, pkgs., 5
Wrought tin. cs., 6
Tin sheets for Canads, cs., 20
Lamp covers for Turk's island, 248
Terns pits., bxs., 300
Tin sheets, os., 75

For the week ended March 23:

Included in the imports were articles of

merchandise valued as follows :

	Pkges.	Value.
Antimony	68	84,175
Anvils	236	2,406
Brass goods	38	4.635
Bronzes	17	3,793
Chains and anchors	37	2,200
Clocks		. 0,149
Copper		6,842
Cutlery	175	60,749
Guns	100	18,871
Hardware	13	65
Iron, hoop, tons		9,499
fron, pig, tons	4,578	74.960
Iron, sheet, tons	95	4.873
Iron ore, tons	345	1,150
Iron, other, tone	3,675	\$1.397
Machinery	499	28,785
Mrtal goods	393	37,296
Nails	49	34%
Needles	3.9	4,589
Old metal		1,427
Platina	1	925
Platedware	3	491
Percussion caps	10	445
Pins	4	600
Saddlery	16	1,854
Spelter, lbs	115,729	4.544
Steel	74-174	139,937
Tin, boxes	41,191	193,820
Tin, 937 slabs, lbs	213,106	93.131
Wire	749	6,165
Zinc, lbs	17,086	698
Zinc oxide	100	938

The quantities of leading articles of merchandise received compare with previous dates as follows :

	For the week.	12 weeks of 1883.	Seme time 1882.
Cutlery, pkgs	275	1,741	1,831
Hardware, pkgs	13	295	399
Iron R. R., bars		4.330	40,548
Lead. pigs		103	5,686
Steel, pkgs	74.174	£68.757	433,486
Tin, bxs		417,642	524.987
Tin slabs, ibs	112,100	4,549,142	1,995,196
WWDODW	0 OH 00	THOUTH	

For the week ended March 24:

I	Previo	ously	re	port	e	d										0					\$378 57 3,638,84
1	Total	since	J	anu	n.i	3	,	£,	Z	8	g	3						۰	۰	. "	\$4,037,43
ı	8 me	time	in	188	ì.								۰					۰			18,751,30
	Same	time	in	188	. 1						۰		۰								2,946,32
J	Same	time	in	188	٥.																3,914,37
1	Same	time	in	187	٥.									ı							5,007,02
	Same	time	in	187	3.										 			۰			4.5%5,97
	Same	time	in	187	7 .														į.		3,436,60
	Same	time	in	1870	٥.			0									٠				12,033,83
	Same	time	in	187	5.	۰															16,222,28
l	Same	time	in	187.	١.			0												۰	8,448,96
Į	Same	time	in	187	١.												 				14,766.58
j	Same	time	in	1871	ì.			0			۰				 			0			5,223,58
1																					

EXPORTS EXCLUSIVE OF SPECIE. For the week ended March 27:

1981, 1882, 1883, \$7,418,223 \$5,817.425 \$7,319,032 83,519,586 70,244,380 78,725,585 Total ... Prev. reported ... Since Jan. 1......\$90,937,809 \$75,061,705 \$85,074,607

PHILADELPHIA.

Office of The Iron Age, 220 South Fourth St., PHILADELPHIA, March 29, 1883.

Pig Iron.-The market has been somewhat more active, but prices show no improvement whatever. In fact, sellers hardly expect any change of that kind, and are disposed to push sales, even though such a course involves slight concessions. It is satisfactory, however, to be able to report large sales, and in that respect the market certainly shows improvement. A few of the leading brands command full prices and are close sold up, but in the majority of cases reductions of more or less importance have been made, in order to meet buyers' views.

As remarked in a recent report, it does not necessarily follow that the market is in a worse condition than before simply because prices are easier. Prices now quoted are for arge lots actually sold ; previously they were a great extent nominal, and represented sales of small lots, or were merely asking rates, in response to which very few offers for large lots could be had at any price. Taking all the facts into consideration, therefore, the market is in a healthier condition than it has been, although prices are far from satisfactory to producers. Neither is the outlook encouraging to the producing interest. A large proportion of the Pig Iron offered today has cost all that can be realized for it. has cost all that can be realized for it, in many instances it has cost more, while the chances of improvement in prices are very slight. Production must there-fore be reduced until surplus stocks are absorbed, or business be done on a most unremunerative basis. It will probably take all summer to adjust the supply in proportion to the demand; hence the improbability of any immediate enhancement of values. This condition of affairs is the result of a great shiphogo in consumption during the consumption during the consumption of the c of a great shrinkage in consumption dur-ing the past three months, and although it is likely that the general improvement in is likely that the general improvement in business will help to restore things to their normal condition, it will require weeks and perhaps months before any upward move-ment can be established. Much will depend upon crop prospects, however. Another year such as the last will be of incalculable value to the business interests of the coun try, while a partial failure, such as in 1881, would be likely to produce most serious results. Transactions in Pig Iron during the week have been at a very wide range of prices, according to character of brand, quantity taken and deliveries. No. 1 Foundry has been sold as low as \$22 at furnace, but the general quotation for standard brands is \$22.50 @ \$23, and from that up to \$24 for very choice. No. 2 Foundry, \$20.50 @ \$21, with a few brands as low as \$20. Mill Irons have shown a still wider range of values, say \$18 @ \$21 at furnace. A few choice brands still command \$21, but, as a rule, \$19 @ 19.50 is quoted for standard brands, while outside lots have been sold at \$18 @ \$18.50, and even less for large Three or four lots of 5000 tons each been taken during the week at \$19 at fur-nace for Lehigh brands, at which price the market may be considered fairly steady.

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Bessemer Pig.-No indications of a demand; prices are therefore purely nominal at \$22 asked.

Spiegeleisen-Nominal at \$32 @ \$32.50 asked.

Muck Bars,—There has been a fair amount of business during the week, but prices appear to be weakening. Sales generally at about \$36, with \$36.50 asked for extra quality.

Bar Iron.-The market is fairly active r small lots, but there seems to be very If there is any change at all, it is in the direction of improvement, but it is very slight. Prices are unchanged, but the market is somewhat steadier, and concessions not so little disposition to anticipate requirem

general as a few weeks ago. Small lots comgeneral ss a few weeks ago. Small lots command full quoted rates, but for a good-sized order, with desirable specifications, there is still plenty of competition. The mills appear to be moderately well employed, but there are very few who have orders to run more than three or four weeks, so that a good deal depends on the current demand being well maintained. Sales have been made at from maintained. maintained.

2.25¢ to 2.3¢ for best Refined Iron, down to about 2¢ for ordinary qualities. Skelp Iron nominal at about 2.25¢ for Grooved and 2.5¢

Plate and Tank Iron.-A moderate amount of business has been done in small lots, but there is no particular change of feature. Manufacturers keep a sharp lookout for new business, and until a larger amount of orders are on the books than there are at present, prices can hardly be expected to improve. One or two good-sized lots (say, 500 to 700 tons in all) of Boat Plate will probably be taken during the week, beyond which there is very little inquiry. Prices are about 2.5¢ for ordinary grades, 3.5¢ for Shell Iron and 4.25¢ @ 4.5¢ for Flange.

Structural Iron.-The market is dull, and the mills have barely held their own during the past week. There are a few orders likely to be placed at an early date, but the immediate outlook is not specially encouraging. Prices are unchanged—say, 2.5¢ for Angles, 3.2¢ for Tees and 3.5¢ for Beams and Channels.

Sheet Iron.- The market is somewhat irregular, and, on the whole, rather unfavorable to manufacturers. Some have been able to market their entire output since the first of the year; others have accumulated stock and are anxious to secure orders, although prices may have to be shaded a little. small lots quotations are about as follows, but buyers of large lots can obtain moderate

Common Sheets, No. 284%F
Common Sheets, Nos. 26 and 27
Common Sheets, No. 22 to 25 ¢
Common Sheets, No. 16 to 21, 31/4¢
Best Refined 1/4 % advance on the above.
Best Bloom Sheets, No. 26 to 28 #
Best Bloom Sheets, No. 22 to 25
Best Bloom Sheets, No. 16 to 21 61/4
Common Red Plates, 3-16 to 16
Blue Annealed, 3-16 to 16 3-34
Best Ploom, Galvanized, discount35 \$
Eccond quality, discount45 \$

Steel Rails.—The market is very quiet and but few sales have been made for some time past. There are buyers at about \$38, but in the meantime manufacturers quote \$39 @ \$40, according to quantity, secti rail, time of delivery and location of mill.

Crop Ends .- Several sales have been made during the week, in all probably 2500 tons, part Bloom Ends. Prices realized were from \$21.75, at tide, to \$23, market closing firm at \$22.50 @ \$23.

Iron Rails.-There is some inquiry for Iron Rails.—There is some inquiry for Light Rails for Southern roads, but we have not heard of any sales being made. A 4000-ton lot of 56-lb Welsh Rails, which have been in store in New York for a long time, were sold at \$28, and afterward resold to a Florida company. Inasmuch as the last sale was part exchange, quotations cannot be given definitely. given definitely.

Old Rails .- A few hundred tons Double Heads sold at \$27.50, and small lots T's, spot, at \$25 @ \$25.50. Shipments offered at \$23 @ \$24 without attracting attention.

Serap Iron .- Cargo lots, \$25 @ selected yard lots, \$26.50 @ \$27.50. Market

Wrought Iron Pipe. - Demand still continues light, with prices weak at about previous quotations, viz.: Boiler Tubes 55 % and Steam and Gas Pipe 67½% @ 70% off list price.

Nails-Have not been in active request, and are called for principally in small lots.

Prices are irregular and may be nominally quoted at about \$3.15 @ \$3.20 \$ keg.

PITTSBURGH.

(Special Dispatch to The Iron Age.)

Perrsburgh, March 28, 1883. At an adjourned meeting of the Western Nail Association, held in Pittsburgh, the following preamble and resolution was adopted: Whereas, The reports from the Nail manufacturers generally indicate that the de mand is taking up the Nails as fast as made;

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Mill

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Whereas, It is desirable that the manufacturers may have an opportunity, if possible, to accumulate a stock to enable them to fill ders promptly; therefore, be it

Resolved, That the stoppage provided at the last meeting be postponed two weeks.

This permits the mills to run until April 21st. There seems to be a great scarcity of This permits the mills to run until April
21st. There seems to be a great scarcity of
Nails in the hands of mills and jobbers, and
stocks are very much broken. This action
was deemed necessary to enable the mills to
sort up and accumulate stocks with which to
fill orders.

Scrap.—There is but little doing, and
prices for the most part are nominal. No. 1
Wrought is quoted at \$25 \$7 net ton for
Ordinary, and \$26 @ \$27 for Selected;
Wrought Turnings, \$17 @ \$19; Old Car
Axles, \$35 @ \$36; Old Car Wheels, \$23,
gross; Cast Borings, \$13 @ \$14.

Office of The Iron Age, 77 Fourth Avenue, 6

The weather during the past week has been very unfavorable for the growing crops, the mercury during the greater part of the time being below freezing. General business has not improved much in consequence. Our manufacturers are discouraged Not only is the situation at present un Not only is the situation at present unsatisfactory, but the outlook for the future is not encouraging. Making due allowance for exaggeration, there is no doubt that the winter wheat crop has been badly damaged in some localities. The crop and weather reports are being scanned very closely by our manufacturers, who are well aware that ut good crops the market for manufactured goods must of necessity be very much curtailed. Pittsburgh is dependent mainly upon the great West and South for a market ther products, and unless those sective good crops, she is certain to suffer.

Ore.—The situation remains unchanged, as with that of a week ago. Consumers are still buying only to supply immediate wants. They are not sure that prices have reached the lowest point, and it is evidently their intention to keep themselves in position to take advantage of a further decline. The Lake Ore companies desire to have it understood stood, however, that rather than sell their

Ore at cost or a loss they will stop mining. It is evidently their intention to gauge the production by the consumption, and thereby revent an accumulation, as was the case

Pig Iron.-Business has been less active the past week. Apparently, there is less disposition to anticipate future wants than there was a month ago. Owing to the backwardness of the season, orders for finished goods are not coming forward very freely.
Mill owners are buying the raw article only as their immediate wants require, notwith-standing they do not expect it to rule much, if any, below present prices. In two impor-tant respects the situation is favorable to the furnacemen—one is the reduced production, the other an increased consumption. The consumption here has been increased con-siderably within the past few weeks, while scarcely a week passes that we do not hear of one or more furnaces blowing out. It is also worthy of mention that the stock in first hands west of the mountains is not nearly so large as was supposed, and it will no doubt be the policy of the Western Pig Iron Asso-ciation to keep the production down to the lowest possible limit until there is a decided change for the better. It appears to be generally admitted that the cost of production has been reduced to the lowest possible limit, and that the margin for profit at present prices is small. Any further attempt to bear the market will therefore be resisted by blowing out. We repeat former quotations

No. 1 Foundry.			\$22.50	@ :	3.00, 4	mos.
No. 2 " .			20.00		21.00.	4 "
Gray Forge Neu	itral		10.00	a.	20 00,	4 14
White and Mott	led				rg.co.	4 10
Bessemer Iron.			22.50			4 18
Cold-Blast Char	coal	*****			35.00,	

Muck Bar .- There have been no sales since our last report, in the absence of which we quote, nominally, at \$34 @ \$35, cash, at mill. There is not much offering, but it is because sellers know that it is useless unless at a price below cost; besides, mill men generally prefer to make their own Muck

Manufactured Iron.-Manufacturers gen erally report but little change in the situa-tion during the week, and while dissatisfied with the present, they are hopeful as to the future. Stocks in hands of large consumers and jobbers are unusually light, and just as soon as they commence to buy with any freedom the mills will have about all they can do. We continue to quote prices on a basis of 2¢ for Bars, 60 days, 2 % off for cash.

Nails .- At Chicago, Milwaukee, St. Louis Alla.—At Chicago, Milwaukee, St. Louis and other points of distribution at the West, prices are being cut more or less, caused by an attempt of Eastern makers to get a foot-hold in those markets, and this the Western manufacturers are determined to resist. Business continues dull, and unless there is a very decided change for the better in the meantime, there will be another stop of two weeks made next month. Prices are still quoted at \$3.40, 60 days, 2 % off for cash, with usual abatement of 10¢ \$2 keg on car-

Wrought Iron Pipe .- Trade is still reorted slow—unusually so for this season of ne year—but a change for the better is the year—but a change for the better in looked for within the next week or two. Prices remain unchanged: Discount on Gas and Steam Pipe 70 @ 70 and 5 %; on Boiler Tubes, 55 % off. Oil-Well Casing, 50% ? foot, net; do. Tubing, 15¢ @ 16¢.

net; do. Tubing, 15¢ @ 16¢.

Old Ralls.—It is difficult to quote American Tees, as there are but few selling. The last sale reported was at \$26, and for immediate delivery they cannot, so far as we can learn, be laid down here from any point East or West below the price above quoted. Contracts for delivery during the summer months, sellers' option, could be made at \$25, possibly, but consumers here are refusing to make contracts for future delivery. The offerings for immediate delivery are light.

Steel Ralls.—Heavy Sections for near-by

Steel Rails .- Heavy Sections for near-by Steel Rails.—Heavy Sections for near-by delivery are still quoted at \$40, cash, at mill. The mills are pretty well supplied with orders, having enough booked to absorb their production for several months.

Steel .- The Merchant Steel trade continues quiet, with no recent change in prices.

Railway Track Supplies .- There is a very fair business in Spikes, but under the influence of a strong competition prices are lower. We now quote at 2.60¢, 30 days; Splice Bars, 2¢ @ 2.10¢; Track Bolts, 3.25¢ with Square and 3.35¢ @ 3.40¢ with Hexagon Nuts.

Crop Ends.—There have been no sales reported for so long that we omit quotations.

The market is firmer, however, and higher

No. 1 Hanging Ro prices in the near future are looked for.

Coke.—Business continues unsatisfactory, although all that can be expected, in view of the depressed condition of the Pig Iron trade, with so many furnaces out of blast. Prices unchanged—\$1.05 per ton, delivered free on cars at ovens.

Window Glass .- This important interest continues very unsatisfactory. Not only is business light, but prices are unremunerative.

Bar Iron, 2.30¢ @ 2.40¢ rates; Angle Iron, 3.10¢ @ 3.30¢ rates; T Iron, 4¢ factory in volume. Margins, however, are rates; Beams, 3.80¢; Channels, 3¢; Tank Iron, 3¢ @ 3.20¢ rates; Sheet Iron, 3.20¢ @ 1.20¢ rates; Sheet Iron, 3.20¢ 3.40¢ rates; Norway Original Bars, 3.40¢ rates; Norway Original Rars, 4½¢ rates; Norway Re-rolled Bars, 5½¢ rates; Ulster, 4½¢ rates; Low Moor Iron, 8¢ rates; Nuts and Washers, 8¢ off list; Wrought Boat Spikes, 3½¢ rates.

Pig Iron.-Southern Coke continues firm and the demand is good. Lake Superior Charcoal and Imported Scotch Irons have a tendency to weakness, but we have as yet no change to note in quotations. no change to note in quotations. We quote Charcoal Pig, Nos. 1 and 2, \$24; No. 3, \$25, and Nos. 4, 5 and 6, \$26.50, 4 months; Briar Hill, \$25; Silvery Soft, \$23 @ \$24; Crane No. 1, \$27.50; No. 2, \$26.50; Himrod, \$24; Thomas, \$27.50 @ \$28; American Scotch, \$24 @ \$25; Du Val, No. 1, \$24; No. 2, \$23; Fulton Notch, No. 2, \$22.50; No. 3, \$21.50. Imported Scotch, \$31 % ton, cash Southern Coke, \$25 so Columnt 200 Southern Coke, \$25.50. Calumet, \$23.50, 4 months. Imported Scotch, \$23.50, 4 months.

Steel.—A slight improvement is to be noted in the market for Steel; prices remain, however, without change. We quote as follows: Tool, 12¢; Machinery O. H., 5¢; Crucible Machinery, 7¢; Hammer, 2 inches and under, 8¢; over 2 inches, 9¢; Cast Spring, 6¢, and O. H. Spring, Tire and Sleigh Shoe, 5¢; Sheet, first, second and third quality, 12¢, 10½¢ and 8½¢ respectively; Crucible Plow, 6¢; Eagle Plow, 5¢; Iron Center Plow, 9¾¢, and Soft Steel Center Plow, 9¾¢; Cast Plow, 5¢; German Plow, 4½¢. Steel .- A slight improvement is to be

Scrap Iron .- The inquiry is fair, with Scrap 1ron.—The inquiry is fair, with few sales. The following are the purchasing prices paid by dealers: No. 1 Railroad Wrought Scrap, \$\frac{1}{2}\$ net ton, \$22; No. 1 Country Wrought Scrap, \$\frac{1}{2}\$ net ton, \$20; No. 1 Cast Scrap, \$\frac{1}{2}\$ ton, \$17; No. 1 Stove Plate Scrap, \$\frac{1}{2}\$ ton, \$11; Machine Shop Wrought Turnings, P ton, \$10; Cast Iron Borings, \$7.

CHATTANOOGA.

Office of The Iron Age, Market and 8th 8ts., Chattanooda, March 26, 1883.

General trade in the Southern district has been good for the season during the past week. The weather has been cold, with frosty nights, which have probably seriously njured the fruit crop.

Pig Iron.-There is a steadier market than for some time. Furnace managers, making preferred brands, have determined that mean Irons shall not control the mar-ket, and have succeeded in establishing, by united effort, something like uniformity of price. Best Foundry grades are scarce. Contracts are being made at full rates for Choice lots. We quote: No. 1 Foundry, \$22 @ \$23; No. 2 Foundry, \$20 @ \$21; Gray Forge, \$18 @ \$19; White and Mottled, \$16 @ \$18; Car-wheel Metal, \$28 @ \$30.

Ores.—We quote: 50 % Brown Hematite, ton, \$2 @ \$2.75; Red Fossil, \$2 @ \$2.25, delivered at furnace.

Miscellaneous Articles,-Old Rails are dull and nominal at \$24, mostly bought on private terms for shipment. We quote Wrought Scrap, \$18 @ \$22; Cast Scrap, \$11 @ \$14; Old Wheels, nominal, \$24.

Nails-Are strong at \$3.40, carload lots at mills, 60 days; 15¢ higher for small bills.

Manufactured Iron.-Bar mills continue on double turn, and report satisfactory business. We quote at \$2.40 and steady for large bills; Railroad Spikes, \$3.20; Track Bolts, \$3.75; Fish Plate, \$2.50.

Coal.-We quote : Fancy Lump, \$4 ; Com non, \$3 @ \$3.50; run of mine to manufac-

Coke. We quote: Furnace Coke, \$3 at oint of consumption; Foundry, 10¢ @ 12¢ bushel.

Steel and Iron Rails .- A few small lots have been placed for Pennsylvania mills at \$40 at mill. There is no demand here for Iron Bars, and the mill is closed for want of rerolling contracts.

LOUISVILLE,

Gzo. H. Hull & Co., Commission Mer-chants, report to us as follows, under date of March 24, 1883: The market is firmer in one, and prices on some grades are slightly nigher, but sales are curtailed, owing to difference in views between buyers and sell-We quote, for cash, in round lots, as

	1 Ato. 1 Killinging Roots Callet Court.	A.2'00 AB across
	No. 1 Southern Chargoal No. 1 Hanging Rock Stonecoal and	22.00 @ 23.50
ì	Coke	21.50 @ 22.00
ı	No. 1 Southern Stonecoal and Coke.	(48 22.50
,	No. 2 Southern Stoneccal and Coke.	@ 21.00
	"American Scatch "	21.co @ 22.00
i	Open Silver-gray	20.02 @ 20.50
	Close Silver-gray	19.00 @ 19.50
,	MILL IRONS.	
	No. 1 Charcoal	20.50 @ 21.00
	No. 1 Stonecoal and Coke, Neutral	19 50 (6 20.00
ř	No. 2 Stonecoal and Coke, Neutral	18.50 @ 19.00
	No. 1 Stonecoal and Coke, Cold-short	6 18.50
L	No. 2 Stonecoal and Coke, Cold-short White and Mottled, Cold-short and	@ 18.00
	Neutral	17.00 @ 18.00
	CAR WHEEL IRONS.	
	Hanging Rock, Cold-blast	30.00 @ 32.00
1	Hanging Rock, Warm-blast	25.00 @ 27.00

CINCINNATI

MARCH 26, 1883.—Pig Iron.—More inquiry and requisitions have been made in the past week for present and near future uses, and at prices sustaining quotations last week. The demand is for all grades, including the whole line of Forge Irons that has been so neglected in the past two or three months. It is beginning to dawn on consumers throughout the West that the showing by reliable statistical sources that the surplus on Ma (h 1, this year, of stocks of American Pig is 250,-coo tons less than the same time last year, and that it is very safe to place orders for the season's business. It is thought that the outlook is not upon lower prices—probably the contrary. While there is no special buoyancy in the Iron business in this region, there is good reason for a strong faith in the future future.

Nos. 3 and 4, Close Silvery Soft. . . Forge Irons, \$19 @ \$24, including all grades from Stonecoal, Coke and Charcoal fuels. Car-wheel Irons.—Cold-blast Charcoal, \$28 @ \$30; Warm-blast, \$26 @ \$27. Scrap Irons.—No sales reported to justify quotations.

ST. LOUIS.

HOFFER & Co., Pig Iron and Iron Oro Merchants, 417 Pine street, report to us as follows, under date of March 24, 1883; While trade is still very quiet, there is more inquiry, and some increase in sales Prices remain substantially the same. Quotations

are:
HOT BLAST CHARCOAL IRONS.
Missouri \$21.00 @ 22.00 Southern 22.00 @ 23.00 Ohio 27.00 @ 29.00
COAL AND COKE IRONS,
Missouri \$21 co € 22.00 Southern 21.75 € Ohio 21.00 € 26.00
MILL IRONS,
Red Short
CAR WHEEL AND MALLEABLE IRONS.
Missouri
WALL STREET, WALLEY WALLEY

BALTIMORE.

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, reports us the following, under date of March 26, 1883 : Both values and trade continue depressed and unremunerative, and it is thought we have now reached a basis on which it can safely be predicated that a healthy advance must soon be encountered when trade in-

Ref. Bar Iron, 1 to 6 x 14 to 1. 19 75	24	00	2.35\$
" 1045 X 116 to t W D	2%	60	2.350
" to a, Round			
and Square 1 10			2.359
	3 2-10	0	3 3-104
Rand Iron, from 15 to 6 in. wide "	10 1-10		3 E-10¢
Horse-shoe Iron	334		
NOW WHY PARK HUNGS	5.74	60	
Black Diamond Cast Steel "	EE	GB.	
Machinery Steel	436		
opring oredi		(3)	
COMMON ROUSE NAME.	8.0	610	
Railroad Spikes, 51/2 x 9-16 "	8 0-80		2 7-10€
Perkins' Horse shoes, @ keg of 100	10		34.07 4
" Mule shoes			5 875%

RICHMOND.

ASA SNYDER, Iron Merchant and Furnace Agent, writes as follows, under date of March 26, 1833: Our Iron market continues quiet and steady. No transactions of especial note. Quotations as below:

now, Quotations as below.
No. 1 Scotch Pig Iron
No. 2 " 98,00 @ 24,0
No. 1 Virginia Coke Pig Iron 22.50 @ 24.00
No. 2 " " 21.00 @ 22.9
No. 2 16 16 22.0
White and Mottled 18 00 @ 21.0
Virginia C. B. Charcoal 27.00 @ 29 0
Old Dom. Nails (carload lots) 3 40 @
Old Rails 23.00 @ 24.0
Old Wheels 19.00 @ 21.0
Wrought Scrap, No. 1 21.00 @ 23.0
Cast Scrap, No. 1 19.00 @ 20.0
Richmond Refined Bar Iron 2 4-10¢ base
Horse Shoes (Tredegar) 4.50 @
Mule 16 S. SO GD

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From Our Regular Correspondent.) LONDON, ENG., March 12, 1883.

sation and controversy during the past week.

Everybody is thoroughly surprised that any such measure should have been passed at all during the late session of Congress, and the feeling of astonishment is hightened by the circumstance that the bill should have been pushed through at the very last moment. People here had read so much about the possibilities of American tariff legislation, and had been so bewildered by the contradictory accounts of the past few months, that they had given the whole thing up as a very bad job, in utter despair of any progress being made against the resistance of continues very unsatisfactory. Not only is bisconses light, but prices are unrenumerative. Discounts are still quoted at 70 % on Single and 15% on Double Strength, in carload lots.

Petroleum—Has again taken a sharp derchants. Nos. 115 to 121 West Main street, report to us as follows, under date of March elated, the bulls are correspondingly depressed. Within the past week there has been a decline of 15% @ 17% barrel.

CHICAGO.

Office of The Iron 40c, 15c and 15c a

your Senate and House of Representatives The old tariff dead—what is the new? Or this head there was extremely meager in-formation to be obtained. A few private firms had received cables showing the effect of the new duties on their particular manufactures, and the daily papers (with marvel-ous want of forethought and prescience) gave but paragraphic scraps touching pig iron and steel rails. Not until Saturday last had we anything approaching an accurate idea as to the changes made, and then through the medium of a long cablegram to the Ironmonger. According to that journal's message, there are many reductions on certain classes of goods, but the classifications of the old and new tariffs ap pear to be so widely different that a fair and correct comparison is impossible. Perhaps next week's mails may bring us more de-tailed reports, and so do something in the way of satisfying the hunger of the British mind as to what the upshot is likely to be. The appetite for this news is undoubtedly very keen, and has been wheteed by the reports that extensive inquiries and some positive orders have been received by our ironmasters during the past week. One such order is alleged to be for 2000 tons of hoop iron, to be delivered over some months of the second half of this year. The inquiries are mostly for sheet and bar iron and wire, with wire rods. The telegrams from your side report-ing that certain classes of American manu-facturers "declare that the tariff will ruin them," naturally added fuel to the fire, the inference being that their ruin (deemed highly problematical, by-the-by) could only be accomplished by some course of events proportionately beneficial to British manu-facturers. Here the matter now rests, those who have most experience being under the impression that the new duties will only kad to increased importations in certain lines of goods which you cannot, or do not, at present manufacture for yourselves, or in raw materials.

The general and trade journals have been "leaders" on the new tariff since I ote. Most of the dailies recognize in inst wrote. Most of the dames recognize in the change a "decided tendency on the part of the American people to throw off the bondage of protectionism (whereby the few benefit at the expense of the many) and adopt an enlightened free-trade policy." Many learned dissertations have been penned on this text, in some quarters the conversion of your people to Cobden Club principles being taken for granted, and the exact date of your reception into the Free Trade League fixed! Some few of the better informed papers are Some few of the better informed papers are not by any means so over-jubilant, their convictions being that the United States will not throw off protection suddenly or for some time to come, but that it is only a question of time for the desired event to come about. Of the trade journals, I take excerpts, as below, from two of those best known to your readers:

The Ironmonger says : "The Democrats The Brombinger says: "The Democrats accept it as being merely an installment of a reform, which they promise to carry forward as soon as they shall obtain control of the House of Representatives. Any further legislation, however, is doubtful, partly because the Republicans will central the next Senate, and partly because the country would probably prefer the tariff as now amended to another long period of uncertainty. Leaving that point to the future, it is to be noted that while the free traders are is to be noted that while the free traders are dissatisfied, some of the protected interests are already declaring that they are placed in the utmost jeopardy by the revised duties. The hoop-iron, iron-wire and iron-rod manufacturers of Pittsburgh assert that their business will be ruined, and the pig-iron, sheet-iron and steel manufacturers afirm that their trade will be 'greatly crippled.' This outery is no doubt intentionally exaggerated, chiefly for the purpose of preparing the way for reductions of wages, but also in order that public opinion may be led to oppose the further tariff revision threatened by the Democrats. As the new duties do not come into operation until July 1, there will by the Democrats. As the new duties do not come into operation until July 1, there will be ample time in the interval to analyze them and ascertain their probable incidence. It may be found that the practical effects of the tariff on English manufactures may be more favorable than now appears likely, but that can only be ascertained by inquiries which we are not in a position to institute at the moment. Where the duties are reduced the moment. Where the duties are reduced we may be certain that the American manu-facturers in corresponding industries will strain every nerve to meet the new condistrain every nerve to meet the new condi-tions by reducing wages or in other ways, so that it by no means follows as a matter of course that lower duties must result in in-creased business for us. The tendoncy will be in that direction, nevertheless, and our manufacturers will doubtless not be idle in doing their best to utilize the opportunities so afforded to the best possible advantage."

definitely, but to no good purpose. Before leaving the subject I may mention, however, that Mr. Ecroyd, the well-known reciproci-tarian Member of Parliament for Preston, has given notice that on Thursday, March 15, he will ask the Government questions as to the effects and incidence of the new United States tariff, and as to the manner in hich the duties discriminate against certain British manufactures.

THE IRON MARKET

has remained quiet, and sales have been rather slow, albeit a few grades of crude iron have recovered in price to the extent of about 6d. 2 ton. Scotch warrants of about 6d. §! ton. Scotch warrants have been knocked up and down by speculators, but after touching 48,6, they have again given way and stand at 47,8 for cash. Scotch makers' brands are 6d. or so dearer, as are Middlesboro' pigs. The unseasonably severe weather which has prevailed for a week near these restricted shipments from the as are Middlesboro pigs. The unseasonably severe weather which has prevailed for a week past has restricted shipments from the Northern ports, and has inflicted another destructive check upon the long-saffering farmers, whose lands are now frozen up, and price of Middlesboro' Iron has advanced 6d. price of Middlesboro' Iron has advanced 6d. price of Middlesboro' Iron has advanced 6d. onsequently unworkable. This check has consequently unworknote. In a case has similarly affected all other outdoor industries, and has nipped in the bud the incipient improvement noticed a week or 10 days ago. In hematite pigs there is no change to note, In mematice pigs there is no change to note, 51/@ 53/ being as near as general quotations can get to the figures of actual sales. Other classes of pig iron are uneven and mostly unchanged. Heavy manufactured iron is much as of late—that is to say, in large current output, but weak as to prices for future deliveries. Marchant iron of for future deliveries. Merchant iron of ordinary sorts is dull, marked bars in Staffordshire being £7. 10/ 12 ton. Welsh bars in ordinary assortments are selling with tolerable steadiness for India, &c., at £5. 12/6 @ £5. 15/\$\forall \text{ ton, f.o.b.}\$ Iron rails meet with a limited inquiry, and only for special parcels of very light sections. Old rails are neglected for your market, but several sales are noted to home consumers. Heavy wrought scrap is nominally 57 6 @ 60/\$\forall \text{ ton, f.o.b.}\$ London, &c., but is without any export demand worth mentioning. Old railway leaf-spring steel is dull on United States account, whence there are but few offers of those at low c.i.f. rates. In Bessemer blooms there is literally no business doing, and crop ends are nominal at 60/\$\forall \text{ ton, f.o.b.}\$ Wales, Barrow, Middlesboro', &c. Steel rails are quoted at £4, 15/\$\text{ @ £5. 5/} for ordinary heavy sections. The market is sleady, not only because sundry orders have 15/ 20 ton. f.o.b. Iron rails meet with for ordinary heavy sections. The market is steady, not only because sundry orders have been placed of late on home and Colonial account, but because the reduction of \$11 in your tariff leads to the hope that compe-tition may, in consequence, be carried on with more beneficial results to our rail con-

THE BOARD OF TRADE RETURNS.

for February show that our imports during for February show that our imports during 1.st month were worth £36,890,096, against £33,002,892 in February, 1882, while our exports were of the aggregate value of £18,280,810, against £18,935,994 in the same month last year. The total quantity of iron and steel exported was 255,844 tons, worth £2,023,825, as compared with 299,911 tons, valued at £2,303,891, in February, 1882. The chief items of the returns interesting to The level Aggregates are: esting to The Iron Age readers are:

Articles.	Quar	tities.	Values.			
	1867.	1983.	1882.	1683.		
Firearms, No	10,160	10,283	£22,001	£23.74		
Copper, unwt., cwts.			81,703	05.08		
Copper, wrt., cwts Mixed or yellow metal sheathing.	20 311	30,218	89,103	118,05		
ewta		24,798	80, 53	87.42		
Coal, &c. tons	1.34, 138		020.450	670		
Hdw and cuttery	1.347 130	1144-12-4	821.108	204.02		
Pig iron, tons	91 319	80,548	254507	224.35		
rod	28,787	18,050	211,412	140,83		
ron rails, tons	7.68	4,001	48 -84	20.28		
steel rails, tons	50,594	4000	564,999	301.67		
Railroad of all sorts.	2 14 0					
tons	72.681	67.452	401,255	434.67		
Wire (except telegr. wire), galvanized						
foops, sheets and	7-543		107.588	80,54		
boiler plates, tons	23.082	24,140	268,428	264,91,		
fin plates, tons	17,276	19,137	310,299	442 02		
last or wro't, tons	23,074	21,970	345.499	335,04		
old for manufacture.						
tons	14-150	4.031	57. '32	15,17		
itest, unwr'ght, tons fan'factures of steel	19.837	5,546	181,556	105,01,		
and iron, tons and - Pig, rolled abcet, piping and	1,218	1,253	68,005	60,35		
tubing, tons	2,990	8.018	47. 48	42.85		
team engines			218,535	215.37		
ther descriptions of machinery and mili						
work			579.073	640,079		
late and plated and						
rel. wire & appara-	*******	*******	31,593	18,46		
with			40 717	23.7 1		
'in (unwrt.), cwts	4.730	7,715	20,181	27.77		
ine or spelter, cwts.	10,767	14,463	31,795	9.45		

TO THE UNITED STATES

the principal items were as under

Articles.	Month of February,	Month of February, 1862.	Month of January, 1883.
Alkali, cwts	263,204	214,201	341,924
Hardware and cutlery, £.	28,024	33-4-3	45,287
Bar, angle, rod, &c.,	15,907	26,511	21,290
tons	1,197	3,252	1.315
Railroad, all, tons Hoops, sheets, plates,	5,017	27,509	6,606
&c., tons	2,646	1,795	1,315
Tin plates, tons	14,650	13 314	10,378
Cast or wrought, tons	235	732	728
Old, tons	2,100	13,157	5-345
Steel, unwrought, tons	4.349	87.070	2.357
Lead, all sorts, tons	111	110	45
Steam engines, £	3.845	6,969	5.854
Other machinery, &c. £	39.508	37,091	37.142
Tin, unwrought, ewts Special return-Iron rails,	513	775	949
tons	1.050	5,494	131
Steel rais, tons	3.037	37.774	5.0"2

THE AVERAGE PRICES

paid per ton for certain materials, &c., work out on the average thus

Articles.		To United	france document		To all countr's	States.
	£.	ß.	d.	£.	6.	d.
Pig iron	3	2	374	2	9	0%
Scrap iron	3	11	9	3	19	534
Steel, unwrought	18	9	3	25	7	9
Iron rails	5	13	5	6	1.4	734
Steel rails	D	9	63;	6	.9	6%

SCOTCH PIG IRON

is dull as regards warrants, but firm in respect of makers' own brands, with good shipments and a respectable local consumpshipments and a respectable local consumption. There are 113 furnaces blowing in Scotland (including 9 on hematites), against 103 a year ago. In Counal's stores there are 590,085 tons (a decrease of 1343 tons on the week), against 630,361 a year this date. Shipments this year are 2588 tons ahead of 1882 during the same period, while importations of Middlesboro' pig iron into Scotland are 16,614 tons less. Writing from Glasgow n March 10, James Watson & Co. said: The Scotch iron market opened on Monday ast at 47/8, with a strong upward tendency, and the price steadily advanced until 48/5½ was paid on Wednesday forenoon. Since then the price has relapsed rapidly, owing to holders realizing, and 47/7 was accepted to day, closing with buyers at that figure, The shipments last week were 10,217 tons, as compared with 12,597 tons for the corres-

								1	N	0	. 1.	No. 3
G. M. B., at Gl	asg	w.									49/6	47/0
Clyde,	6.6										52/	50/
Coltness.	6.6										65/	55/
Lanzloan,	0.0										65/	55/6
Gartsherrie,	6.6							 			63/	55/3
Summerlee.	6.6										62/	52/
Calder.	0.6										62/6	59/6
Carnbroe,	6.0										56/	50/6
Glengarnock, a	t Ar	dro	18	SI	u	ì.		 			56/	50/
Eglinton,		0.0									50/	4776
Dalmellington,		61					ì				50/6	49/6
Shotts, at Leitl											64/	56/
Kinneil, at Bo'												47/6
Carron, at Gra	nge	not	ıt	h							50/6	

has become a trifle firmer, but it is not yet very strong, on the basis of 40/6 @ 41/ for No. 3, makers quoting the higher limit. For G. M. B. the rates for net cash, f.o.b.

No.	E	Foundr	Y 45/	Mottled 30/
0.0	2	5.0	43/	White 39/
5 11	3	0.0	41/	Refined Metal 57/
0.0	A	0.6	40/6	Kentledge41/
* 1	A	Forge		Cinder 35/

are mostly unchanged, parcels of mixed numbers being 50/6 @ 51/ in second hands, and makers' brands as under:

		N	ю. т.	No. a.	No. 3
Cleator				56/	55/
Lonsdale				53/	52/
Workingto	D		53/	52/6	32/
West Cum				15	***
Lowther				59/6	52/
Moss Bay. Distington				52/6	52/
Harrington				53/	53/
Solway			23/	52/6	52/
Maryport.					52/
ANN	UAL RE	PORTS	AND I	IVIDEND	8

just now in circulation and declaration show that some, at all events, of our large con-cerns manage to make a sort of living profit. Bolckow, Vaughan & Co.'s report states that "during the year ending December 31, 1882, the directors had to contend with low that "during the year ending December 31, 1832, the directors had to contend with low prices in nearly every department of the company's operations, and especially so with respect to the products of their collieries. The amount of profit available for distribution is £307,035, being practically the same amount as last year. The directors recommend for payment of interest on debentures, £22,934; for dividend on preference shares, £20,000; for dividend on fully-paid shares of the company, at £1. 10/ \$\frac{1}{2}\$ share, equal to 7½ \$\frac{1}{2}\$ aunum, and for dividend on the shares with £12 paid, at 18/ \$\frac{1}{2}\$ share, equal to 7½ \$\frac{1}{2}\$ aunum, £187,923; to be written off capital out of the profits of the year, £40,000; balance to be carried forward, £36,178; total, £307,035. The stocks of the company are brought forward in the balance-sheet at the very large sum of £47,822. During the past year there has been spent £126,675 on capital account. Of this amount the directors propose to write off against revenue the sum of £40,000, leaving the amount to be brought forward in future balance-sheets as £86,675. They trust that, now the steel works are complete, much less will appear in the future than has trust that, now the steel works are complete, much less will appear in the fature than has appeared in the past under this heading of capital expenditure. Though the winning of salt has progressed somewhat more slowly than was expected, before their next meeting of shareholders this item will be added to the other productions of the company."

The balance-sheet of the Moss Bay Hema-The balance-sheet of the Moss Bay Hematite Iron and Steel Co. for 1882 shows a net profit of £34.778, after payment of interest on debentures, &c. Adding to this sum £1,247 for premiums on shares allotted since August last, there is a total of £36,025. An

The Bilbao Iron Ore Co.'s report states that the profit on the year's working amounts to £41,619, and after payment of debenture repayments and interest there remains £26,489, which, with £15,691 brought forward from 1881, gives a balance of £42,181. The directors recommend a dividend of 6 % on the paid-up capital of the preference shares, which will absorb £1963. 10/, and a dividend of 4 % on the ordinary shares, which will absorb £20,000; £15,000 is carried to a reserve fund to provide floating capital, and £1049 carried forward. The company's shipments for 1882 were 630,172 tons, com-£1049 carried forward. The company's shipments for 1882 were 630,172 tons, compared with 441,906 tons for 1881, a gain of 188,266 tons. The exports from the Bilbao River reached a total for the year of 3,637,-176 tons, showing an increase of nearly 50% over the exports for 1881. In May last an agreement was concluded with the Spanish concessionaires, whereby a settlement of all claims and arrears and a satisfactory modificlaims and arrears and a satisfactory modifi claims and arrears and a satisfactory modifi-cation of their royalties were effected. The directors contemplate the desirability of changing the name of the company to the Galdames and Portugolette Harbor Railway Co., Limited.

are said to be numerous and important, ac cording to the local correspondent of the Ironmonger, who states that the United States are becoming important customers

metallic-bedstead trade is reported in the United States. Hitherto the Americans have made nearly all they require in this line, and it was only in special goods of an expensive character that English makers were able to do anything with the States. Latterly, however, the American demand for English bedsteads has been rapidly growing, and importers find that, notwithstanding the heavy duty of 45%, these goods can be sold cheaper than they can be made, at all events, in the Southern and Eastern States. Within the last fortnight Birmingbedstead makers have received very ham gratifying practical evidence of the appre-ciation of their goods in America in the shape of large orders for early shipment, with the promise of others to follow. American buyers have been making a round of the principal factories, and selecting patterns adapted to the tastes and requirements of their customers, which are by no means of the cheapest class, and the aggregate value of the orders already placed must amount to some thousands of pounds. One of the largest buyers is himself a manufacturer at New Britain, Conn., who makes a specialty of a wire mattress, and the orders which he has placed with different makers must represent over 1000 bedsteads, mostly of the better class of brass or brass and iron. In one case I hear of his giving as much as £60, net, for a single bedstead, but the bulk of the orders are for single bedsteads at from £3, 3/ to £12. The American orders are almost exclusively for single bedsteads."

I also hear that the Birmingham gun mak-

ers and brass founders are receiving large orders from your market, from which it is reported that the taste for English goods is decidedly growing stronger.

FOREIGN.

(Moniteur des Interets Materiels)

PREAUE.

(Moniteur des Interets Materiels)

Paris, March 11, 1881.—Metals.—The political situation being less confused, confirence has revived, and Metals, with the exception of Lead, have been active and higher. We quote to-day: Copper—Chili Bars, 170 © 172,50; Ingots and Silos, 177, 50; Best S-lected, 180, and Pure Corocoro Oro. 172,50. Tin.—Banen, 262,50; Billiton, 260, and Straits, Australian and English. 255. Lead, 31,50. © 34,50, and Spelter, 41,25 © 41,75. Iron.—The Northern rolling mills seem to get better started in the way of fresh orders, at least some larger dealings are reported in Flooring Iron. In the Longwy basin the blast furnaces have come to an agreement to reduce the general output, and thus put a stop to the drooping tendency of Pig Iron in that district The Northern rolling mills are urged to follow the example, reduce work and steady prices for the spring season. In this city Merchant Iron may be quoted 19 to france Picokg, and Flooring ditto, 20 france, at which rates the market lacks dimmess. It baving been stated that the Government intends reducing all its orders for public works by 20 5, this rumor has been given that the 183; programme of work would be carried out & laid down, but that for 184 a reduction might take place. Business in the Iron trade, in spite of this 1 umor, has been generally more active this week than the previous one. At the North, Merchant Iron sells at 18,50: in the Haute-Marne makers have been stiff in their demands at 20 20,25 for Coke Merchant, and 2 20,21,50 for Machine Mixed. Old Rails are worth in this city 10,25 % to 50. The Coal demand has revived and all aorts of Coal are well held.

BELGIUM.

BELGIUM.

(Moniteur Industriel.)

BELGIUM.

(Moniteur Industriel.)

Brussels, March 12, 1883.—Iron.—We are glad to be able to confirm the gradual revival in the Iron trade in Belgium alluded to in late reports of ours. Orders drop in more copiously; orders that had been in treaty for a long time and begin to be despaired of by makers, have suddenly been brought to a conclusion. The amelioration so far keeps within moderate bounds; most rolling mills are far from being booked in tull, but at any rate a further decline in prices is not likely now. The locomotive works are still very busy; the car builders and machine shops might be more so. Fortunately the spring sesson is at hand now and seems to have a fair chance of being inaugurated under tolerably favorable circumstances. Prices have varied very little. English Foundry Pig remains 6 frames; Charleron, 7.2, and Luxembourg, 6.2c; Puddling ditto is 6.25 at Charlerol and 5.75 in Luxembourg is Charleron, 7.2, and Luxembourg, 80.1 Merchant sells at 13 francs; No. 2 at 14, and No. 3 at 15. Beams are held at 14 at 14, and No. 3 at 15. Beams are held at 14 at 15 francs in Luxembourg is Charleron, 10, and 12 No. 4. At an adjudication which came off on Wednesday the Government took 1500 railway springs of the Cockerild firm at 24.45 francs. The Government will sook bin the market inviting tenders for a large amount of railroad material it stands in need of. Metals have been steady. We quote Copper, Tough Ingots, 175; Tin, 249 250; Soft Lead, 33, and Spelter, 34.75. Coal.—Domestic is neglected, while both industrial Coal and Coke continue to be well held. We quote Domestic, 13 @ 20; Gas Coal, 20; Mixed, 12 @ 15; Small Coal, 9 @ 12; Coke, 19, and ditto Half Washed, 21 @ 22.

(Koch & Vlierboom.)

ROTTERDAM, March o, 1883. — Tin has again assumed greater firmness, Banca selling as high as 62.35 guilders on the spot, and 58.50 deliverable from the impending sale to come off on the 25th inst., when 22.500 slabs Banca will be put up at auction. March 12 — Market closes firm at 58.25 @ 48.50 for Banca and 27 for Billiton, spot. The latter, June delivery, sells at 57.75 guilders \$\mathbb{T}\$ 50 kg.

not exceed 90,672 tons, of which 7692 tons was argentiferous: Silver, 24 tons: Copper, 22,478 argentiferous: Silver, 24 tons; Copper, 23,478 tons; Spelter, 7032 tons; Quicksilver, 1512 tons; Pyrites, 1,455.892 tons; Calamine, 42,911 tons, and Antimony Ores, 23,912 tons.

ITALY.

(Rassegna)

Turin, March 12, 1883.—Iron.—The Government as limited the export of Iron Ore from the Island f Elba to 250,000 tons annually. The output in 820 was 287,650 tons, from six mines, employing ogether 1202 men at 2 francs per day, being 69,42 ons more than in 1879. The price of Iron Ore is 475 francs \$\mathbb{T}\$ ton. The export is done by the eneral Miners' Bank of Elba, whose offle is at export.

The Wire Rod Duty.

A correspondent of the New York Journal of Commerce gives the following, which pur-ports to be a history of the wire-rod paragraph of the new tariff :

As drafted by the Tariff Commission and ubmitted to Congress, the paragraph was as ollows: "Steel rivet, screw, nail, fence follows: and wire rods, round, in coils and loops, not lighter than No. 5 wire gauge, and valued at 3 cents per pound or less, 1 cent per pound." This proposed rate of duty was very nearly double the existing duty.

very nearly double the existing outy.

As reported to the Senate by the Finance Committee, the paragraph read as follows:

"Iron or steel, screw, nail, fence and wire rods, round, or flat, with longitudinal ribs, in coils and loops, not lighter than No. 5 wire

gauge, I cent per pound."

The Ways and Means Committee reported the paragraph to the House of Representatives precisely as recommended by the Tariff Commission. The House in committee of the whole amended the paragraph so as to read as follows: "Steel rivet, screw, nail, fence, and wire rods, round, in coils and loops, not and wire rods, round, in coils and loops, not lighter than No. 5 wire gauge, and valued at 3½ cents per pound or less, 30 per cent. ad valorem." The Sonate by a decisive vote amended the paragraph as reported by the Finance Committee so as to read as fol lows: "Iron or steel rivet, screw, nail, fence, and wire rods, round, or flat in coils and loops, not lighter than No. 5 wire gauge, 6 cent per pound. Iron or steel, flat, with longitudinal ribs for the manufacture of fencing, .6 cent per pound." The paragraph steed thus when the Senate tariff schedules were referred to the conference committee.

ommittee. The report of the conference committee as submitted to the two houses in print. was submitted to the two houses in print. The body of the report was printed in italics, and the ameudments recommended by the committee were printed in Roman letters. At the end of the report was printed an "Index to changes proposed by committee on conference, giving the subject of the proposed change in each case, and the page and the line where the change was indicated in Roman letters. A very few moments bein Roman letters. A very few moments be fore this report was read to the House Chairman Kelley, a member of the conference committee, assured the House that, with the exception of two changes in the earthenware schedule, one change in the metal schedule relating to circular-saw plates, and one change (a matter of punctuation) in the wool schedule, all the changes proposed by the conference committee were indicated in the text of the printed report, and could be easily referred to by consulting the index. A similar announcement was made to the Senate by Senator Morrill, who was a mem-ber of the conference committee. The wirerod paragraph, as reported in print by the conference committee and as read to the two houses and finally adopted, was as fol-

"Iron or steel rivet, screw, nail and fence wire rods, round, or flat, in coils and loops, not lighter than No. 5 wire gauge, valued at 3½ cents or less per pound, 6 cent per pound. Iron or steel, flat, with longitudinal ribs for the manufacture of fencing, .6 cent per pound."

Now, according to the printed conference Now, according to the printed conterence report, (which was the report actually read and voted on), and according to the assur-ances of Messrs. Kelley and Morrill, the index to the report and the Roman letters, the members of both House and Senate had every reason to suppose and believe that the only changes made by the conference committee in the wire-rod paragraph were (1) the striking out of the words "or flat" after round, and the insertion of the words "valued at 3½ cents or less per pound," after gauge. There was not even an audex referest on debentures, &c. Adding to this sum \$E1,247\$ for premiums on shares allotted since August last, there is a total of \$25,052\$. An interim dividend of 5 per cent. In absoben paid, absorbing £11,015, leaving a balance of £25,010. The directors recommend the payment of a dividend of 5 per cent. (on the barnet complain, except the many force to what may prove to be one of the most important changes made by the conference cent. (on the bayment of a dividend of 5 per cent. (on the bayment of a dividend of 5 per cent. (on the payment of a dividend of 5 per cent. (on the bayment of a dividend of 5 per cent. (on the bayment of a dividend of 5 per cent. (on the bayment of a dividend of 5 per cent. (on the bayment of a dividend of 5 per cent. (on the bayment of a dividend of 5 per cent. (on the bayment of bay ceeded in making the paragraph ambiguous, thus securing a chance of obtaining from the Treasury Department a decision favorable to their interests. Evidently intending to remove, if possible, the ambiguity of the conference report, somebody tampered with the punctuation of the paragraph. After the report was adopted and in the engrossed bill, a comma was inserted after the word "fence," so that the law now reads: "Iron and steel rivet, screw, nail, and fence, wire

the engines at the last moment, but thinks he has evolved the secret from the ing" of a gun or a rifle. He proposes to put on the front of the ship a sufficient number of immense cannon, to be loaded with guning cotton or dynamite or some other eq cotton or dynamite or some other equally inoffensive material, ready to be fired by electricity at a moment's notice. The effect, he thinks, would be negative—the "kicking" of the cannon would be sufficient to stop the largest ship at a moment's notice.

Waste of Fuel in Factories.

It is sometimes distressing, says the American Engineer, to observe the waste of fuel going on in factories, and doubtless many an engineer, in witnessing it, has made the reflection, "What a paying business this or that particular line of trade must be, if so enormous a waste of fuel can be permitted and the concern be prosperous." Still, this is an ordinary experience, which is recalled to us by an example brought to us by an example brought to our notice a short time ago. A manufacturer, who employs steam for power and drying purposes, was exceedingly surprised that a sectional form of boiler which he had added to his establishment did not perform the same amount of service which a tubular shell boiler of half the rated capacity did without boiler of half the rated capacity did without difficulty. It was to him indeed a most extraordinary proceeding, and he was driven to the conclusion, contrary to his desire, that the boiler manufacturers had not given him the capacity guaranteed in the sectional form of boiler. Where the shell boiler consumed but IV tons of each par day the sec sumed but 1½ tons of coal per day, the sectional boiler could not accomplish the same amount of work with a fuel consumption of amount of work with a fuel consumption of six tons per day. Finally, he called in an expert to examine the matter, to determine the horse power developed by the boiler, and to advise him. The manufacturer was of the opinion that everything had been done by him to have the steam plant in economical running order, and, indeed, in the past few weeks he had paid many hundreds of dollars to a steam; fitter to exceed the work had the work. dollars to a steam-fitter to overhaul the work. To him, then, it was a perfect mystery why this waste of fuel should exist. Our expert friend, knowing the reputation of the sectional boiler manufacturers, felt convinced that the boiler was equal to the capacity guaranteed, but undertook to examine the matter.

One glance at the establishment sufficed to convince him where the difficulty lay, and it was only as a matter of business duty that he undertook to make the experimental trial of the boiler, which developed the fact that the boiler was up to its guaranteed capacity, and, in fact, was being pushed far beyond its legitimate duty, without accomplishing the desired amount of work. While the shell boiler was close to its work, the sectional boiler was recovery hundred foot are the fact of the sectional boiler. boiler was close to its work, the sectional boiler was many hundred feet away. The cause assigned for this was that the stack was on the premises at the time of the purchase, and the boiler was accommodated, not to the work, but to the stack. The steam was conveyed from the boiler to the location of work by poorly-protected pipes with a conglomeration of rectangular bends, elbows and similar obstructions, and every trap and connection leaked to its heart's content. The steam-fitter, instead of having remedied these connection leaked to its heart's content. The steam-fitter, instead of having remedied these sources of waste, had spent his energy in selling and putting in extra pipe. The coal used was of a size far too great for economical use, and the depth of fire exceeded by 9 inches what would have been the proper depth. The consequence was that the extent depth. The consequence was that the ashes removed from the fire-room contained at least 33½ per cent. of combustible, and despite all these conditions, and others of a similar character too numerous to mention, the mention the manufacturer was at a loss to compre hend why the sectional boiler should not do the same amount of useful work as the tubular shell boiler, close to where its steam was being used. Had the boiler been placed in its proper locality, three months' saving of fuel would have paid for the removal of boiler and for the cost of a new stack. This example of wasteful use of fuel was situated in a country town, too, where the value of land is insignificant, but fuel very expensive. We cite this case in illustration, because it is typical of many, and because we would point the lesson that in the arrangement of a factory, and especially of the steam plant, com-petent engineering counsel should be sought, for the same reason that a lawyer is engaged to draw contracts or to search a title, or the architect engaged to put up the building. We presume it will take some time till manu facturers as a class are educated to this standpoint, the real difficulty being to reach those who are in most need of the education

New York Iron and Metal Exchange.

—A meeting of the stockholders of the two existing Iron and Metal Exchanges will be held at 2 o'clock this afternoon, at No. 69 Wall street, to vote upon the proposition to consolidate the two bodies in a single organization. The Board of Managers of the Exchange on Pearl street have already signified change on Pearl street have already signified their approval of the measure and it is conjectured that at the meeting to day little opposition on either side will be manifested. Rumor says that a prominent iron manufacturer will be proposed for President of the new concern, and a well-known metal broker as Vice-President; also that the name spoken of is "The New York Iron and Metal Exchange."

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A Flood of Molten Metal .- An accident of a serious nature happened at the Cleveland Rolling Mill, in Newburgh, last week. A converter in the Bessemer steel works, containing from seven to eight tons of molten metal, was suddenly overturned, owing to a sudden cessation of the hydraulic pressure by which it was being moved. The great mass of flery liquid was poured into the pit beneath, exploding with greats force. About 20 men were standing about, and all of them were more or less injured, some of them fearfully. Patrick Foley, a single man, was burned terribly by the wave of steam that poured out of the pit. auction. March 12—Market closes firm at 58.24 and steel rivet, screw, nail, and fence, wire the solution of the purpose, who states that the United states are becoming important customers both for engines and machinery, and adds:

Quite a new development of the English

auction. March 12—Market closes firm at 58.24 and steel rivet, screw, nail, and fence, wire rods," &c.

Thomas Burgerine, who was standing near Foley, was also burned in the face so badly that he was hardly recognizable. Both are posses a plan for stopping ships suddenly, so as to prevent collisions. He cannot conceive of a "brake" of sufficient power for the ment has just published the statistics for 1831, from which it appears that Lead production did purpose, notes the inefficiency of reversing none of them dangerously.



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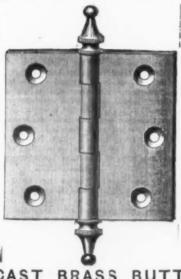
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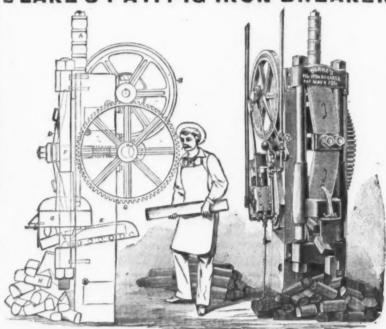


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Our Old Steam Vessels

In his "Chronological History of the Origin and Development of Steam Navigation," which has just been published, Admiral George Henry Preble, already favorably known as the historian of the Stars and Stripes, gives some interesting notes on the early steamboats and steamships of New York and the neighboring waters. The first boat mentioned was that propelled by Samuel Morey from Hartford to this city in 1794. This, the sixth steamboat built in the United States, was a stern-wheeler, and made the voyage at the rate of five miles an hour, among her passengers being Chancellor Liv-ingston, Judge Livingston, Edward Living-ston and John Stevens. Morey, whose claims to the invention of the first successful steam boat must, however, give way to those of Fitch, always insisted that Fulton surreptitiously imitated his model. The seventh suc-cessful steamboat was the invention of John Fitch and was tried under the natronage of Robert H. Livingston in the summer of 1796. It was 18 feet long and of 6 feet beam, and was steered at the bow with an oar. The boiler was a 10-gallon iron pot, with a plank lid, and the cylinders were of wood strongly hoped, the agent of propulsion being a screw propeller. The scene of the experiment was the Collect, a fresh-water pond long since drained and built over with Canal and other streets. In 1797 Chancellor Livingston built his steamboat on the Hudson, and obtained from the Legislature an excluaive privilege for one year on condition that he produced a vessel impelled by steam at the rate of three miles an hour. This, how-ever, he and his associate, Nisbett, were unable to do, though they had as their en-gineer Brunell, afterwards distinguished as engineer of the Thames Tunnel. In 1798 the experiments of Nicholas J. Roosevelt for Chancellor Livingston and John Stevens asured the success of the steamboat through the adoption of vertical paddle-wheels over the sides

On April 5, 1803, the New York Legislature passed an act granting the right and exclusive privilege of navigating all the waters of the State, by vessels propelled by fire or steam, to Livingston and Fulton, for a space of 20 years. Two years—the term was afterward extended to four—were allowed for the proof, which was to be the propulsion by steam of a 20-ton boat at the rate of four miles an hour, with and against the ordinary current of the Hudson. In May, 1804, Robert L. Stevens and the "Commodore" crossed from the Battery to Hoboken in a small boat with tubular boile and two propellers. Its engines are still preserved, if we mistake not, in the Stevens Institute of Technology, at Hoboken. Fulton's more famous Clermont was, however, about to eclipse all the craft of the experi-mental era of steam navigation. The Cler-mont, which was launched in the spring of 1807 from the yard of Charles Brown, was 130 feet long with 18 feet beam and 6 feet hold, and took her name from the Chan-cellor's country seat. She resembled in model a Long Island skiff, and was decked for a short distance at stem and stern engine was built by Boulton & Wo England, 24 inches cylinder and 3 feet stroke, and the boiler was of the low-pressure pat-tern, 20 feet long, 7 deep and 8 broad. The boiler was set in masonry and the condenser stood in a large cold-water cistern, the weight of these appliances making it difficult to sel. The engine was open view, and a house like that of a canal boat was raised aft over the boiler for the accommodation of the officers. The side-wheels were 15 feet in diameter, with buckets 4 feet wide and dipping 2 feet in the water. There where no wheel-guards, and it was a favorite trick of the skippers of the river core for the property of the p of the river craft to run foul of the unwieldy of the river craft to run roul of the unwieldy Clermont and carry off a wheel. The rudder was of the shape used in sailing vessels and moved by a tiller. The Clermont started from New York for Albany at 1 p. m. of August, 1807, with a few friends of Ful-ton on board, some mechanics and six pas-sengers. There is no need to describe her successful voyage. It should be added, however, that ere the close of the season the wheels were surrounded by a frame of strong beams and the paddles were covered in, and the rudder was changed to the pattern now used on all river boats, and was worked by a wheel. During the winter of 1807-8 the Clermont was almost wholly rebuilt; her hull was lengthened and covered from stem to stern with a flush deck, and two cabins were formed beneath it, surrounded by double ranges of berths

The Car of Neptune and the Paragon, vessels of 350 tons, were soon added to the Hud-son River line, the Clermont having proved during her second season inadequate to the the Delaware and up to Philadelphia, where The through fare was \$7 and the way fare 5 cents a mile, the minimum charge for each passenger being \$1. In 1816 the Chansize of the Sound steamboats of to-day. With a strong wind and tide in her favor she could make 12 miles an hour. The Chancellor Livingston was broken up in 1834, after running for two years on the opposition line between Boston and

the Norwich and New York Transportation Company.

On the 2d of July, 1812, the Jersey made her first trip between New York and Paulus Hook, the opening of this steam-ferry being celebrated with a grand banquet given by the Jerseymen. "On both shores were thousands of spectators viewing the pleasing object." The York was added to the line a year later, when the boats were supposed to make halfhourly trips from sunrise to sunset. Each of these ferry-boats was composed of two boats, each 30 feet long and of 10 feet beam, with the wheel and engines between the two.
They were of the double-end pattern. Ar act of March 4, 1814, authorized William Cutting and others to run a steam-ferry between this city and Brooklyn, and the New York and Brooklyn Steamboat Ferry Asso ciation having been formed by Fulton and Cutting, the Nassau made her first trip in May. The fare was 4 cents, and the trip occupied from four to eight minutes, 40 crossings being made daily.

During the war of 1812-14, news from the army of General Scott was brought to the ewspapers of New York "by the arrival of the fast-sailing Car of Neptune in 24 hours from Albany." In October, Fulton launched the first steam warship, the Demologos, afterward named the Fulton the First. She was 150 feet long and 56 feet beam, mounting 30 long 32-pounders and two 100-pound-Her general idea was that of the ferryboats, being a double-ender, with the wheel and engines in the central space between the two vessels of which she was composed. According to the veracious and unexcited correspondent of a Scotch newspaper of the period, her sides were 13 feet thick, and her engines were so arranged that if an enemy attempted to board he would instantly be scalded to death by a pump discharging 100 gallons of boiling water a minute, or transgallons of boiling water a minute, or transfixed by 300 heavy iron pikes of great length darted from her sides with prodigious force every quarter of a minute, and chopped into mincement by 300 cutlasses brandished over the gunwales by mechanism with the greatest regularity. Luckily for the British the war was soon brought to an end, and the Fulton the First had an uneventful existence as a receiving-ship at the Brooklyn Navy. ence as a receiving-ship at the Brooklyn Navy Yard until she was blown up, June 4, 1829.

On the 28th of September, 1816, the Con-ecticut, Captain Bunker, arrived in New York after a 21 hours' passage against wind and tide from New London. In October a regular line commenced making semi-weekly trips to New Haven. Not until 1821 was an excursion made to Providence, R. I., on the Robert Fulton, and the regular line was only established July 12, 1822, somi-weekly trips being made by the Fulton and Connecticut. The New York Legislature had granted great privileges to the Livingston and Fulton Steam Navigation Co. Without a license from the company no steam vessel was allowed to navigate the Bay, the Sound, the North River or any of the lakes or rivers of the State, and the Connecticut Legislature, in turn, had excluded from Connecticut waters all vessels bearing such a license. The Connecticut, it has already been said, was plying between New York and New Haven, in opposition to the packet lines, and the owners of the packets had influence enough to drive her and the Fulton away from Connecticut ports This enactment led to the formation of the The packet great Sound steamer lines. wners were both enterprising and success ful, and had already driven the Firefly off of the Newport-Providence route by carrying passengers for 25 cents—no pay if sails did not beat steam. Her retirement was greeted by a mass meeting of triumphant packet men, who denounced interlopers and drank men, who denounced interlopers and drank "confusion to steamboats." The departure of the weekly packet for New York was in those days an event of no little importance. Passengers came on board the beautifully-modeled sloops of from 75 to 100 tons capacity, accompanied by their relatives and friends, and the captain's stately decanters having been set out to the mahorany disposhaving been set out on the mahogany dinnertable in the cabin, a solemn health drunk to the prosperity of the voyage. fare was \$10, including meals. Sometimes a flying vessel like the Huntress made the run in 18 hours; at times the passage occupied a week. Over the cabin stairs hung the mahogany letter-box, and on the arrival of the packet there was a rush to get letters in advance of the slow mail plodding over the post roads, and the captain, having distributed his mail, produced the decanters once more, that the correspondents might drink his health. Quincy records how, only a few months later, on the Sound boats, de canters of brandy were set out along the for each ssenger

drink all that he liked, or all that he could.

The Connecticut was a white boat with green trimmings, had a square engine, and cost \$30,000. The Fulton was the first during her second season inadequate to the travel, though at the first there was no little prejudice excited against her because of the inconvenience of having to be on board at an appointed hour. A few days after the Clermont's successful trip, Robert L Stevens put his paddle-wheel steamboat, the Phœnix, in motion on the Hudson. Being precluded from plying in New York waters, Stevens first employed the Phœnix as a passage-boat between this city and New Brunswick; then, in June, 1809, carried her under steam round to the Delaware and up to Philadelphia, where burned pine wood under large copper boilers kept polished to the last degree of brightness. she was placed on the Trenton route. By 1813 we find the Hudson River steamboats regularly advertised, leaving New York on Tuesdays, Thursdays and Saturdays at 5 p.m., and Albany on the same days at 9 p.m. coal was introduced the old copper boilers paid for the new iron ones. Against these formidable competors the packet men vainly endeavored to array the Rhode Island Legis-lature, a bill to tax passengers being recellor Livingston was constructed, a giant lature, a bill to tax passengers being revessel of 496 tons, or almost one-sixth of the jected, and another to restrict their landing on the soil of the State indefinitely post-poned. Then they surrendered to the inevitable

In 1819 the Savannah, built at Corlears Hook by Crocker & Fickett in the preceding year, made the first voyage across the sea, Hook by Crocker & Fickett in the preceding the opposition line between Boston and Portland, and her engines were placed in the Portland, said to have been the first steamer that burned anthracite coal with success, the blower being devised for her by her engineer, Mr. J. B. Coyle, afterward president of the Portland Steam Packet Co. The honor of making the first successful experiments with hard coal is, however, claimed for Capt. W. W. Coit, founder of the proceeding the first successful experiments with hard coal is, however, claimed for Capt. W. W. Coit, founder of the proceeding the first voyage across the sea, going under canvas to Savannah, and sailing the passage in 25 days, during 18 of which her assage in 25 days, during 18 of which her engine was employed. She had a jointed the production of the produc

plying between New York, Charleston, Havana and New Orleans. In 1829 the directors of the Chancellor Livingston Steam Packet Co. raised a tremendous storm on the Sound by prohibiting the stewards from the Sound by prohibiting the stewards from placing decanters of brandy and spirits on the tables—indeed, they had to publish a letter explaining that they were incited to their action by a desire to help the cause of reform father than by "petty motives of economy or gain," pointing out that the tables were still supplied with an abundance of good red wine. "In addition to all this, whenever any, person may choose to order brandy or any, person may choose to order brandy or irits from a belief of their necessity, it e immediately and cheerfully supplied from the bar, and the gentleman will hear no more about it, unless he pleases." In 1832 Robert L. Stevens conceived the idea of his famous iron-armored battery, begun in 1843 to be laid aside in 1854, and finally to be sold in 1880 as old iron. In the same year Dr. Junius Smith formed the more practical and pregnant idea of the British and American Steam Navigation Co., having become convinced, after a 32 days' passage from New York to Plymouth that any ordinary sea-going steamer would have run it in 15 days with ease. He was scouted as a visionmuch as Cyrus Field was when not so very long afterward he assailed the capital-ists of both countries with his cable scheme; the packet owners opposed him; the Duke of Wellington declined to countenance "any scheme which had for its object a change in the established system of the country." But the company was formed, and the British Queen, a gigantic "steam frigate" of 2400 ons, was contracted for. Pending her completion the Sirus was dispatched from Cork, April 4, 1838, reaching New York on the 23d, along with the Great Western, which had sailed from Bristol on the 8th.

In 1837 Ericsson had established the feasibility of the screw-propeller system with the Francis B. Ogden, which Sir William Symonds, Surveyor of the British Navy, declined to approve, "because the power being applied in the stern, it would be absolutely impossible to make the vessel steer." Captain Robert F. Stockton, United steer." Captain Robert F. Stockton, United States Navy, had more confidence and ordered the inventor to build two iron boats for him on the rejected model. The R. F. Stockton crossed the Atlantic under sail early in 1839, and permission having been granted by Congress to run her in American waters, she was renamed the New Jersey and employed on the Delaware and Schuylkill as a tag. Ericsson came over in the and employed on the Delaware and Schuyl-kill as a tug. Ericsson came over in the autumn of 1839 and built the war steamer Princeton, fitted with the screw pro-peller and having her engines placed be-neath the water-line. What, by the way, became of "the quicksilver ship," the steamer Columbus, built for the Transatlantic trade in 1838, in which the heat of the furnace was applied to the pau of quicksilver, water being thrown therein, and instantly converted into superheated steam?

The first steam-whistle used on a steam-oat was that placed upon the King Philip, plying between Fall River and Providence by Stephen D. Collins, in 1837. In 18, trial between the Great Western and trial between the Great Western and the Princeton proved the great superiority of the screw propeller. Steam propellers, carrying some passengers, but being mainly intended for freight, began navigating the Sound in the same year, the pioneer vessel being the Quinnebaug. The first iron passenger steamer to ply on the Hudson was the Iron Witch, built by Ericsson for Captain R. B. Forbes in 1818. Init she proved a failure. R. B. Forbes in 1845, but she proved a failure, and her engines were put into the Falcon, a wooden steamer, the first to carry the American flag to Chagres in connection with the California route. The California, which sailed from New York October 6, 1848, was the first to bear the Stars and Stripes to the Pacific Ocean. The American paddle-wheel Pacific Ocean. The American paddle-wheel steamer Golden Age, when she arrived at Liverpool in 1853, attracted much attention, from the fact that she had no bowsprit.

Parry's flagship, the Missis-April 23, 1855, Perry's flagship. the Mississippi, arrived at the Brooklyn Navy Yard, having been the first war steamship of the American navy to circumnavigate the globe.

Belgian Steel Works in 1881 .- In the year 1881 there were three steel works in Belgium, all active, and all in the Province with 16 Bessemer converters, three were idle. There were also 26 heating furnaces in operation and three idle, and the number of hands employed amounted to 2506. The raw pig consumed was 79,072 tons of native, and 56,310 tons of foreign, together with 13,373 tons of steel scrap. This quantity yielded 141,640 tons of ingots, valued at about \$3,287,000. With 120,897 valued at about \$3,287,000. With 122,897 tons of native and 1714 tons of foreign ingots, the following finished products were turned out: Rails, 87,047 tons; tires, 11,361 tons; rolled steel, 8690 tons; hammered steel, 10,207 tons; thick plates, 1748 tons; thin plates, 184 tons; total, 119,237 tons. This quantity, however, does not include the steel wire made by the Angleur Co. particulars of which have not hear for Co., particulars of which have not been furnished.

Quite a number of our charcoal iron works, says the Journal of the Charcoal Iron Workers, carry a fixed amount of insurance against fire on cord wood cut and ranked, and in several instances remuneration for damages has been obtained. The losses to which the owners of woodlands are subjected form a considerable item in their cost jected form a considerable item in their cost of maintenance, and the expense of fighting forest fires annually augments to a large sum to many iron works. The only available methods to reduce this outlay and loss is to secure rigid enforcement of existing laws, or obtain greater protection by enactment, and to be well prepared to fight fires when they occur. This is the time to take precautionary measures against fire. In three months many may be too busy fighting fire to perfect any arrangements. fire to perfect any arrangements.

LATE PUBLICATIONS.

Preble.—History of Steam Naviga-tion. By Rear Admiral George H. Preble, U. S. N.; 483 pages, large 8vo, cloth; 1883 .

This work is a chronological history of the origin and development of steam navigation from 1543 to 1882. As the author states in his introduction, he has not followed all the inventions and improvements that have in-tervened. He gives a complete account of the early experimenters, their attempts and what they accomplished; but the main part of the book is devoted to the first practical use of steam as a motive power for vessels at the beginning of the present century, and shows the progressive advancement to the present time. All the important facts relating to marine engineering in all parts of the world are chronicled, and in this particular alone the work is valuable for reference to engineers and others interested. Recent novel inventions and experiments are discussed, and the work includes an appendix of valuable data. The author has gathered a vast amount of matter from original es which are not generally accessible

Larden.—A School Course on Heat. By W. Larden; illustrated, 321 pages, half roan; 1883 . .

This is a well-arranged treatise, especially adapted to young engineers and those who have no previous knowledge of physical science. Among its contents are chapters on the expansion of solids and liquids, ebullition, conduction, radiation and vaporization. There are also practical remarks on the mechanical theory of heat and heat engines. The mathematical portions are treated at length and in a very careful manner.

- Practical Mechanics. John Perry, M. E.; 148 illustrations, 271 pages, 12mo, cloth. London, 1883.

This book is a well-arranged explanation of the principles of mechanics, and to understand and comprehend its contents require stand and comprehent its contents requires no more scientific knowledge than any intel-ligent mechanic should have. The work is designed for the use of those who are not trained mathematical students. The author is clear and concise in his statements and illustrations, and the whole subject is treated in a satisfactory manner.

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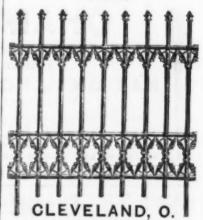
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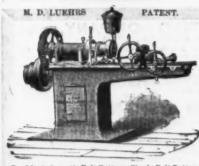
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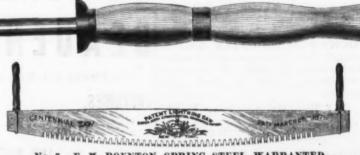


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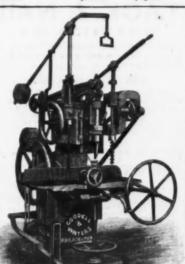


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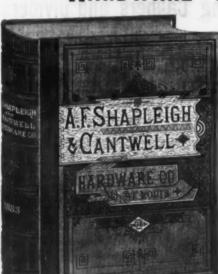
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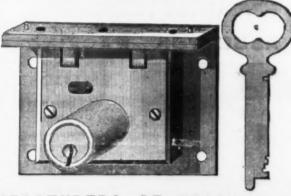
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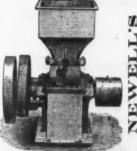
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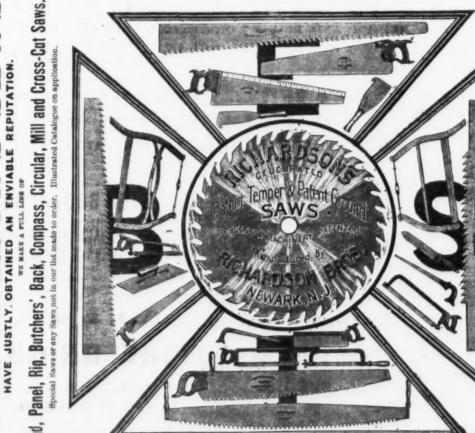
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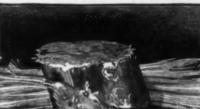
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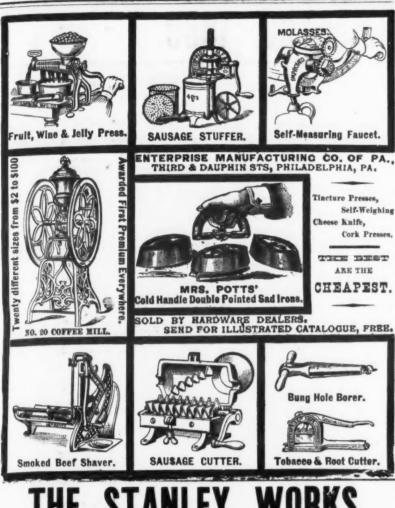
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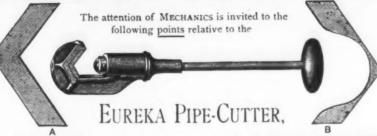
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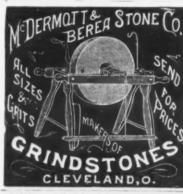
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Spring Balances dis 15#10 %	E. B. Mush Can Cent
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8	Curtain Pius. net Vivered Qiass net Vite Enamel net Curtery. Curtery. Curtery. Cuttery. Cutte	Li
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	NO.7, Larger No. 1, 81; 2, 81; 0; 3, 82; 4, 85, 60 dls 3; 8blin 8 Lever No. 1, 9 dos. \$1.00; 2, 827; 1, 82, 2dls 20; 9 dos. \$1.00; 2, 87; 1, 82, 2dls 20; 9 dos. \$1.00; 2, 75; 3, 82, 2dls 20; 9 dos. \$1.00; 2, 75; 4ls 3; 5 dos. \$1.00; 2, 81, 80; 75; 4ls 3; 5 dos. \$1.00; 2, 81; 50; 4ls 6; 5 dos. \$1.00; 5 dos. \$1	と ままれる あるこ
		R MERKE
	Adjustable Handlo dis zo witherby Tool Co dis 5,exto Dotudas dr. 96,exto dis 5,exto dis 5,exto dis 5,exto dis 5,exto Drills and Drill Stocks dis 5,exto Drills and Drill Stocks each, \$2.50, dis zo Blacksmiths each, \$2.50, dis zo Breast, F. S. & W dis zo. 25,exto dis zo	RIN SHEMBAN
	Blackshiths Schreeding with the second preast, P. S. & W	AN EN PRESENTATION
	Whitney's Hand Drill, Plain, \$11.00 Adjustable, \$12.00 dis Wilson's Drill Stocks dis 10 Automatic Boring Tools each, \$0.25, dis 20 Drill Chucks, Morse's Beach Patent dis 30 Morse's Adjustable each, \$10.00, dis 30 Danbury each, \$3.00, d.s. 30 Danbury each, \$3.00, d.s. 30 Danbury each, \$3.00, d.s. 30 Danbury	
1	rgg Benters.	d
1	Monroe's	f
	Mill E. Buckets, heavy 5 to 10 m. (Duc's Improved), ***********************************	
1	Sibley's Emery and Crocus Cloth, large size, \$10; medium, \$0.50 & ream. dis 15 \$ Enameled and Tinned Ware. Kettles. dis 50 \$ sauce Pars. dis 25 \$ 11 inned Sauce Pars.	-1
-	Escutcheon Pins. Brass. dis 50 % Escutcheons. Door Lock	- 1
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10100	Sommer's Best Metallic Key dis loxico z. Sommer's Cork Lined, sit quality dis 50 z elf seesauring, Enterprise doz. 52,00,0 dis 25 elf Measuring, Lane's P doz. 50,00, dis 25 elf Measuring, Lyctor doz. 40,00, dis 28 to z elf Measuring, Victor doz. \$1,00,0 dis 28 to z elf Measuring, Victor doz. \$1,	
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田田中田〇〇へ	Finting Hackbues. Inox, 1/2 Inch Rolls	1000
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CHHVMA	heney 8 artford Hammer Co. (new list July 1. '81) dis 20 8 umason & leckley. dis 50 8 corree. dis 50 8 garette Tack. Nos. 1, 2, 3, \$1.26, 1.50 and 1,7. dis 25 8 agnetic Tack. Works dis 4, 6 15 8 dis 50	DEFECTES
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Hickory Firmer Chisel, assorted, \$\foating\$ gross .\$\foating\$.\$\foating\$ whickory Firmer Chisel, large, \$\overline{x}\$ gross .\$\foating\$ Apple Firmer Chisel, assorted, \$\overline{x}\$ gross .\$\foating\$ Apple Apple Firmer Chisel, assorted, \$\overline{x}\$ gross .\$\foating\$ Apple Apple Firmer Chisel, assorted, \$\overline{x}\$ gross .\$\foating\$ Apple Apple Apple Firmer Chisel, assorted, \$\overline{x}\$ gross .\$\foating\$ Apple Apple Apple Firmer Chisel, assorted, \$\overline{x}\$ gross .\$\foating\$ apple Apple Firmer Chisel, assorted, \$\overline{x}\$ gross .\$\foating\$ apple Apple Firmer Chisel, assorted, \$\overline{x}\$ gross .\$\foating\$ apple Firmer Chisel, assorted, \$\overline{x}\$ gross .\$\foating\$ apple Apple Firmer Chisel, assorted, \$\overline{x}\$ gross .\$\foating\$	s tio
File assorted, \$\psi\$ gross. 2.75 25\text{\$\text{\$\text{\$\delta\$}}\$} Auger, assorted, \$\psi\$ gross. 5.00 Auger, large, \$\psi\$ gross. 7.00 Patent Auger, Ives'. dis 20 Fatent Auger, Douglass' \$\psi\$ est \$\psi\$, \$\text{\$\delta\$}\$ est \$\delta\$, \$\text{\$\delta\$}\$ est \$\delta\$.	et let
# Stanger of patterns dis 68rc Barr Door, New England dis 58rc Barr Door, New England dis 58rc Climax (Anti-Friction). dis 5 Champion "Medina Mg. Co. \$15 dis 58rc Sterling Improved (Anti-Friction). dis 5 Sterling Improved (Anti-Friction).	*****
Sterling Improved (Anti Priction)	A TI
Cheritiee dia & Kidde's (Mis ook: U.S. 4 in., \$12,5 in., \$15; dia & ook: U.S. 4 in., \$12,5 in., \$15; dia & ook: The "Boss" (In., \$10,5 in., \$12,5 in., \$10,5 in., \$10	AY: PE
Hotelskiss	BXXPE
Covered spring, new list, oct., 1822	
Shingling, Nos. 1 2 3 & doz 87.25 \$8.00 \$6.75	% P
Claw Nos. 1 2 3	X :
Lathing, Nos. 12 3. \$\frac{1}{2}\$ dos 7.55 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8	Pe
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coviii Pattern dis 4 standied Plattern dis 24 standied Plattern dis 25	Tak Bla Tur
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ielt dis cokins den de	Bro
Oat and Hat, Sargent's list. A. (III coato & Oat and Hat, Rearling. dis joakrato & 'icture Hooks, Brown's Pat. Solid Brass. \$4.00 \(\text{in} \) gross. \(\text{dis 5} \) dis 5% assel and Picture (T. & S. Mig. Co.). \(\text{dis 5} \) dis 5% assel and Picture (T. & S. Mig. Co.). \(\text{dis 5} \) dis 5% (Fernanch Strander and Hooks & Strander dis 60%).	Fab Fab Dix Dix
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Cooks and Eye = -Erans	Nile P Mas Ast
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riorae Snoes.	Plan Plan Plan Plan
Ce Awis, Chisels, &c. American Ice Chisel # doz \$3.00 net ational Ice Chisel # doz \$6.24 dis 20 \$ overlty Ice Break-rs # doz. \$0.24 dis 20 \$	Plat Plat But Ha!
Valte's Sliding Head Picks. ## dos #2 50 dis 40 × Winlay's King Picks. ## dos #2 50 dis 40 × Wood Head Picks, Sargent's. ## dos #2 50 dis 40 × Wood Head Picks, Sargent's. ## dos #3 50 dis 50 × Mallets, Pick in head. ## dos #3 50 dis 50 × Mallets, Pick in head. ## dos #3 50 dis 15 × Mallets, Pick in Handle. ## dos #2 50 dis 15 × Mallets, Pick in Handle. ## dos #2 50 dis 15 × Mallets, Pick in Handle. ## dos #2 50 on int	Hus dur Rus
mp. Mch. Codiz so \$	P. S. P. S. P. S. Disa Star
lce Creep rs. fety Reversible	Cha Cha Star
1 ce Tongs. \$\psi\$ dox \$6.00 dis 25\pi 6.50 fs amplon. \$\psi\$ dox \$6.00 dis 25\pi 6.50 fs amplo \$\psi\$ dox \$2.75 dis 15.50 ft 6.50 ft	Star John Poel Dav
Kalves. mes Sutcher Knives dis 20 g mes Shoe Knives dis 15 g mes Shoe Knives dis 15 g oran's Shoe and Bread Knives dis 25 g oran's Shoe and Bread Knives dis 25 g ay and Straw, Wadsworth's dis 35 g able and Focket See Cutlery Knobs.	Sam Flet Vau 61 Eure Leed
orriage (Jap'd Sec # gross),	Diss Diss E. S.
or Por. Jap'd Same discounts as Door Locks	Prui Whe Dun Leu Hot
emacite, Picture	Jap's Jap's Jap's Hay
elting, Reading dis 30&10 % elting, Mouroe's Patent \$\psi\$ doz \$4.00 dis 30\text{\$10}\$ for the patent \$\psi\$ doz \$4.00 dis 30\text{\$10}\$ for the patent \$\psi\$ doz \$5.00 dis 30\text{\$10}\$ for the patent \$\psi\$ doz \$5.00 for	Hay Hay Hay Shad Pu
Lastierses No. 0, \$8.05; No. 1, \$10.15 net	Beit Bem Bem Sprin Sprin Bem
lice Small, \$6.25; Med., \$7.50; Large, \$10.50, net	Ra S. idi Siidi Barn
nvex kenector \$2.75 \(\) dos, dis 15 \(\) Lemon Squeezers. \(\) doz \(\) 60.00, dis 30 \(\) rectain Lin d. \(\) \(\) \(\)	B. D. Per I Terry
mmis	J. R.

	Townsend's Patent
	Townsend's Patent \$6 00 \$\psi\$ doz, dis 32\frac{1}{2}\frac{1}{2}Parings "Star" \$0.00 \$\psi\$ doz ne The "Boss" \$\psi\$ doz \$\psi_00\$ dis 10\psi_00\$ Dean's. Nos. 1, \$\psi\$ doz, \$\psi_00\$:2, \$\psi_00\$; 3, \$\psi_00\$ dis 10\psi_00\$
dis o&t	Dean's. Nos. 1. @ doz, \$15 00: 2, \$9.00; 3, \$5.00dis 10
56CI	Cotton Chalkdis 55
25 5 ne	Masons' Linen, No. 314, \$1.50; No. 4, \$2; No.
ne	Wasons' Colored Cotton dis 45 % Wire Clothes, Galvanized each 250% does not
109	Cabinet, Eagle
50 9	Cabinet, Bridgeport) dis 25&2 %
ic 9	Cabinet, Stoddard Lock Co dis core
50 9 80 9 60 9	Langstroth & Crane's List, Jan. 1, '77:
10 %	Round Key, Nos. 1 to 5
60 \$	A. E. Deitz, Fiat Key
10 %	"Shepardson" or "U.S."
10 %	F. Many's "Extension Cylinder"\$10.50 & doz net
10 % 16 %	Branford
10 % 50 %	P. & F. Corbin List prices as revised March
30 %	Branford. Norwalk. Norwalk. P. & F. Corbin List prices as revised March Russell & Erwin. Mallory, Wheeler & Co. Whippie Mig. Co. Trenion Lock Co. Reading Hardware Co. (low list). Mallory, Wheeler & Co. Mallock Hardware Co. (low list). Mallock Wheeler & Co. Whippie Mardware Co. (low list). Mallock Mig. Co. Whippie Mig. Co. Mis 105 26 60 5 60 5 60 5 60 5 60 5 60 5 60 5
75	Reading Hardware Co. (low list)
50 10 %	Padlocks-Russell & Erwin dis 30 %
25	Wm. Wilcox & Co
30 %	Komer's
00	J. H. McWilliams
50	Star"
0 %	Mailets.—Hickory
0	Ment (uttern. Discovery of the Market Co., Lignumvites & Hickory dis 30 %
0	# doz. \$14.00 17.00 19.00 30.00 dls 25&5 5
0	Perry's, Nos. 1 2 3 4 4 g'rd 5 g'rd
0	Woodruffs (P. S. & W.)Nos. 100 150
0	Hales' Nos. 11 12 13 13.00—019-20-20-2
0	Draw Cut. Nos. 5 2 6 8 10 Each\$50.00 75.00 80 00 225.00 400.00 dls 20 5
0 %	Nos
5%	Kieser's No. 45
5%	Kleser's Monarch \$45 e doz, dis 40 & Kleser's Butcher \$40 each, dis 20 &
0%	Norwich Look Mfg. Co. and 2 % for cash Wm. Wilcox & Co. Yale Look Mfg. Co. 's "Standard" dis 40 % Knomer s. dis 2 % Concestoga. dis 60 % d
0 %	Reef Shaver (Enterprise Mfg Co.)
3 %	Mincing Knives. Am. (2d qua'ity), ≥ gross, z blade, \$7 2 blades, \$12
2%	3 blades, \$18. net Lothr \$\nu_8\$. dis a.\$10 \$ Smith's, \$\nu doz, Single, \$2.25; Double, \$3dis 3\d\0000820 \$ Cowies Hdw. Co. dis 10\d 10 \$
3%	Cowles Hdw. Codis 10810 \$
30	
8	Stebblas Tinned Ends
8 %	Lincoln's Pattern dis 60% to 5
25	Lincoin Pattern
8	Nuis and Washers. In lots less than 100
7	Bear and section set; it is, boxes, and it to hat.) Square Nuts
Almin	Washers out Crackers.
XX	Washers 7 conf it but fornickers. 7 conf it but Crackers. 7 conf it but Crackers. 7 conf it but fornickers. 7 conf it but fornickers. 8 conf it but fornickers. 9 conf it but
ot ot	Oakumis on 100 bales and over 1/2 % D. Best P B o c
2 2	U. S. Navy # b 6 c Navy # b 6 c c c c c c c c c c c c c c c c c c
×	Cartes and Over 5 % 5 % 5 % 5 % 6 % 6 % 6 % 6 % 6 % 6 %
10	Prior's Patent or "Paragon" Zinc
178	Olmstead's, Tin and Zinedis 6, 5 Olmstead's, Brass and Copperdis 40 5
%	Broughton's, Zine
N NA N	N. Y. Deiting and Packing Codis 20 5
×	Faber's Carpenters'high list, dis 50 % Faber's Round Gilt & g. oss \$4.24, net
7	Dixon's Lumber
5	Picture Nails. Brass Head, Sargent's listdis cozio 5
14.50	Brans Head, J. R. & S. Mig. Co
×	Porcelain Head, I, & S. Mig. Codis 40 % Nules' Patentdis 40 %
4	Pinking from & doz 750, not Pinking Machines.
XX	Magic
70 70	o in., \$6.00; to in., \$8.00 each.
XX	Bench, First Quality
M	Palley's (Stanley R. & L.Co.) new list, Jan. '79. dis 20810 5 The Stanley (S. R. & L. Co.) new list, Jan. '79. dis 20810 5
7	Bailey's "Victor" dis 20&10 " Defiance Adjustable dis 20&10 "
14	Plane Irons, Butcher's
Ser. o	Plane Irons, Auburn Tool Codis 20 % Plane Irons, The Globe Mfg. Co., "Baldwin
45	Plane Iron, Ohio Tool Ce
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Pliers and Pippers. dis 33/4 %
%	Bench, First Quality dis 25 Bench, Second Grant Declare Adjustable. dis 26 Bench, Second Grant Declare Adjustable. dis 26 Bench, Second Grant Bench, Second Grant Bench, Butchers. \$5.00 & \$2.5 fo 2 Plane Irons, Butchers. \$5.00 & \$2.5 fo 2 Plane Irons, Auburn Tool Co. dis 25 Plane Irons, Auburn Tool Co. Baldwin Iron House, Ohio Tool Co. dis 26 Plane Irons, Chio Tool Co. dis 26 Button Patr 4. Button Butt
MM	dis so services and Nippers dis so services and so services and services are servic
ANN	Russell's Parallel
1	Plumbs and Levels.
8	Disaton'sdis 65 % Stanley R. & L. Co.'s Pat. Adjustabledis 65 % 10 %
2 6	Chapin's Patent Adjustabledis 65&10&10 %
X	Standard Rule Co.'s New Adjustabledis 65.810 5 Standard Rule Co.'s Nou-Adjustabledis 55.810 5
5	Onnia Tatent Adjustable
2 2	Plumbs avd Levels. Dission's
% 1	Tetcher Post Hole Augers & doz \$36.00, 618 20 8
% I	6 in. \$25.50; 7, 8 and 9 in. \$25.00 @ dosdis 20010 tureks Diggers @ dos \$27.00
1	Disston's Combined Pruning Hook and Saw.
H	Truing Shears & dos \$.40 & 6.00 Vheeler, M. & Co.'s Combination & dos \$.40 & 6.00 unlap's Saw and Chisel & dos \$.500 dis 6.5 Patters.
1 1 1	numbered Sam and Chinal By day to so dis to b
1 1	Palleys for House and Tackle dis 6xx10 5 ap'd Screw dis 6xx10 5 trass Screw dis 6xx10 5 trass Screw dis 6xx10 5
j	ap'd Clothe Line dis toku s
S H	lay Fork, Solid Eye\$4.50; Swivel, \$4.00, dis 50810 \$ lay Fork, "Anti Friction\$6.70, dis 10810 \$
E H	riass Screw dis 7.5210 % and 6.5210 % and 6.
BBB	emis & Call Co.'s Cast Steel Drivedis 50&1 \$ emis & Call Co.'s Springfield Socketdis 5.&5 \$
888	Punches - \$\forall \text{dct\\$2.00}; 2.25 \ 2.50 \text{dis 05} \\ \text{entis & Call Co.} \s \text{Cast Steel Drive.} \text{dis 05} \\ \text{entis & Call Co.} \s \text{Spring} \text{des 05} \\ \text{conis & Call Co.} \s \text{Spring} \text{des 05} \\ \text{conis des 05} \text{Fixent.} \text{dis 05} \\ \text{dis 15} \\ \text{dis 15} \\ \text{dis 16} \\ \text{dis 16} \\ \text{dis 17} \\ \text{dis 17} \\ \text{dis 17} \\ \text{dis 17} \\ \text{dis 18} \\ \text{dis 17} \\ \text{dis 18} \\ \text{dis 28} \\ \text{dis 18} \\ \text{dis 28} \\ \text{dis 40} \\ dis
18	olid. Tinners'
100	Siding Door, Wrought Brass P b 13c, dis to siding Door, Bronzed Wrt. Iron p foot 12c, dis 35 b
B	emis * Cail Co. 's Spring and Check
B	D. for N. E. Hangers— Small, Med. Large. er 1 o feet
T	erry's Wrought Iron, see # foot
å.	B. Torray Heave Co

March 29, 1883.	
Rayor Strops. dis 60 \$	Bhovels and Tongs. tron and Brass Head, R. & E. Het
Genuine Emerson dis to 8 Fadger's Emerson dis 60 Fadger's Emerson dis 70 Fadger's Enterson dis 70 Fadger's Enterson dis 70 Fadger's Emerson dis 70 F	Polished Steel, new list
Chapman dis 14 66 2 7	Aguare Frames, by case
Rivels	Nelson Tool Works. dis socto \$ Steel Steed Steedges. \$\Pi\$ 30c, dis 35 \$ Steel Face Steedges. \$\Pi\$ 17c, dis 55 \$
Copper Rivets and Burrs	Spoke Shaves. Deflance Metallic
Rivet Sets	Ton.
Red*. Stair, Brass dis 10 Stair, Black Walnut Stair, Brass dis 10 Stair, Black Walnut Stair, American Patent dis 20 Stair, Ame	Bonney's.
Rollers. Barn Door, Sargent's list	Deuriuss
Mnfs List, March 13, 1883	Bycoms Basting
Manila. Tar'd Rose. \$\frac{1}{2}\$ and 5-16 finch \$\pi\$ \$\mathred{m}\$ 17 C Manila, Tar'd Rose. \$\frac{1}{2}\$ \$\mathred{m}\$ 15\frac{1}{2}\$ \$\mathred{m}\$ Manila. Tar'd Lath Yarn. \$\pi\$ \$\mathred{m}\$ 5-16\frac{1}{2}\$ \$\mathred{m}\$ \$\mathred{m}\$ 15\frac{1}{2}\$ \$\mathred{m}\$ \$\mathred{m}\$ \$\mathred{m}\$ 15\frac{1}{2}\$ \$\mathred{m}\$ 15\mathred{m}\$ 15\mathr	Reed & Barton
Maniia, Hay Rope	Cast Steel, Silver Plated
Signi. Hay Rope Boxwood. Ivery.	Tin (Cowles Hdw Co.), case lots. dis 22% Stocks and Dlos. dis 42.% "Lightning" Screw Plate. dis 20%
Rope	Sione. Hindostan No. 1, 60; Axe, 8c
Tand irons P B 3/5c net	Stone Hindostan No. 1, 6c; Axe, 8c # gross \$1.200 dis 5c \$ Hindostan Hacker Stone # gross \$1.200 dis 5c \$ Sand Stone # B 6c, dis 336-80c \$ Washita Stone No. 1, # B she net Washita Stone No. 1, # B \$1.50 net Arkanasa Stone No. 1, \$10 5 in # B \$1.50 net Arkanasa Stone No. 1, \$10 5
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Enterprise Star Irons, new list, July 20, 1882dis 35 % Combined Fluter and Sad Iron # dos \$1.000, dis 15 % Chasse I aundry (N. E. Butt Co.)	Turkey Slips (Chase)
Sand Paper	Grindstones, Family, Loring'sdis to S
Sand Paper. Raeder & Adamson's Flint, oo to 1\(\frac{1}{2}\) & \$4.75\) # ream Facebox & Adamson's Flint, 2, 2\(\frac{1}{2}\) & \$2, 5.25\] # ream Facebox & Adamson's Flint, Assorted, 4.75\] # ream Facebox & Adamson's Emery, \(\frac{1}{2}\) ream Facebox & Adamson's Emery, \(\frac{1}{2}\) ream Facebox & Adamson's Emery, \(\frac{1}{2}\) ream Facebox & Flint, \(\frac{1}{2}\) & \$2.75\] # ream Facebox & Flint, \(\frac{1}{2}\) & \$4.76\] * \$5.25\] Facebox & Flint, \(\frac{1}{2}\) & \$4.76\] * \$5.25\] Facebox & Flint, \(\frac{1}{2}\) & \$4.76\] * \$6.25\] Facebox & Flint, \(\frac{1}{2}\) & \$4.76\] Facebox & Flint, \(\frac{1}{2}\) & \$	Stove Pollsh.
Raeder & Adamson's Emery. ♥ ream \$6.50 @ 11.50 Fartles Flint	Ruby # gross \$3.7%, net Rising Sun. # gross \$5.76, net Dixon's Plumbage # 50, net
Gage's. dis 2025 \$	l oynton's Noon Day & gross No. 1, large, \$5,50 No. 2, small, \$3; No.; 3, medium, \$4. Squares.
Sash Cord. # h 13c net	Squares. dis so %; full cases, dis sokio % 2 \$ Steel
Sliver Lake, Frab Cotton	Disston's Try Square and T Bevels. dis 50% 10 % Winterbottom's Try and Mitre. dis 20% 10 %
Steel Ribbon	New List, Sept. 1, 182, Tinned Swedes Tacks
Sash Locks	Swedes Tacks, all kinds
Valker's Window Springs	Swedes Hungarian Naiis
The Perfect, Clark & Smith, N-Plated. \$\psi\$ gro. \$27.00 net \(\text{Universal} \) dis 95 \(\text{Sash} \) Weights. 80ld Eyes, in 400 \(\text{Dotates} \) lots and over. \(\text{Dotates} \) \$\text{Dotates} 15(cast)	Winterbottom's Try and Mitre
Solid Eyes, in 500 B lots and over	Brush Tacks dis 20 \$ Eathered Carpet Tacks dis 20 \$ Leathered Carpet Tacks dis 20 \$
Sond Eyes, in	Chair Nails
SHVCA B	Tap Borers,
Naws Disson's Circular, Vill and Cross Cut. dis 40 % Disson's Hand, Panel, Rip. &c. dis 20 % Disson's Hand, Panel, Rip. &c. dis 20 % Disson's Lighthing Cross Cuts, now list. dis 40 % Doynton's Circular and Mill. dis 40 % Doynton's Use. dis 40 % Disson's Circular and Mill. disson's	Tapes, Measuring. American
Boynton's Ice	Chesterman'sregular list dis 20 % Thermometers. Tip Case
Livingston's Framed Wood— Livingston's Framed Wood— 101 102 103 ro4 104 105 85 100 7 10 105 not	Thermometers. Tin Case. Tobacco (!utters. Tobacco (!utters.) Enterprise Mfg. Co. (Champion)
Peace Circular and Milit	All Iron Nashua Look Co.'s. P dos \$8.35, dis 20210 % Wilson's. dissayers & Co. Wilson's. dissayers & Co. Wilson's.
Wheele's C. M. C. Cross Cutes.	
Saw Frames.	Winated Tools and Machines. Wing P. S. & W
Saw Frances. White, Vermont. Red, Pollashed and Varnished.	Transom Litters, Wollensak's Patent. dis 35 % Reiher's Patent, new list, Feb., 1882. dis zo&10&10 % Excelsior dis toksek 5
Naw Nets. Salent X Cut, per dos, \$12.00; Hand Saw	Riccision
Stillman's Imitation.	Game. Hake's Fatent. dis 40£; \$ Mouse, Wood, Choker. \$\psi\$ dos \$1.50, dis 10 \$ Mouse, Round Wire. \$\psi\$ dos \$1.50, dis 10 \$ Mouse Care. Wire.
Nash's. Hammer, Hotchkiss	Mouse, Catch-em-alive # dos \$2.50, dis 10 5 Mouse, "Bonanza" per gross \$20 co net Rat, "Decoy" # dos \$20.0, dis 10 5
Bemis & Call Co.'s Plate dis 10 5 Bemis & Call Co.'s Cross Cut dis 12\square 8 Alken's Genuine 83.co, dis 5\square 10 5	Trewels. Lothrops' Brick and Plasteringdis 25 % Reed's Brick and Plasteringdis 15 %
Alice's a initiation dis 20 % Hart's Patent Lover dis 20 % Pisston's dis 20 % No. 1, \$15 No. 5, \$12, dis 20 % of \$1.	Peace's Plastering dis 25 Clement & Maynard's dis 25 Rose's Brick
Hatch, Counter, No. 171	Brades' Brick dis 25 \$ Worrall's Brick and Plastering dis 20 \$ Garden dis 55 \$
Union Platform \$6.00, dis 45 5 Fairbanks' dis 20 8 Richié Bros dis 20 & 10 5	
	Trucks (Warehense, &c.) Penfield Block Co. a list, 1882
Chatillon's Eureka	Solid, Peter Wright's
Family, Turnbull's Scale Beams, List of January 12, 1882dis 335 % 10 % Serapers.	Parallel, Wilson's dis 35&10 % Parallel, Howard's dis 20&10 % Parallel, Merrill's dis 20% %
Adjustable Box Scraper (S. R. & L. Co.), Box O, dis 2020 (Sex ; Handle	Parallel, Backus and Union dis os 10 to 5 Parallel, Oval Side dis os 10 to 10
Sernpers.	Parallel, Prentiss
Screen Corners. Porter's Pat Window and Door Frame dis 3314	Saw Filers, Bonney's # dos \$24.00, dis 20210 \$ Saw Filers, Stearn's
Servew Drivers. Souglas Mfg. Co. dis soknoknoknoknoknoknoknoknoknoknoknoknokno	Coweil Hand Vises. dis 20 5 Richardson's Vise and Anvil dis 25 5 AV mapor Cuttors.
Buck Bros Stanley Rule & Level Co.'s, Varnished Hdisdis 608:10 S Stanley Rule & Level Co.'s, Black Handlesdis 408:10 S	V Smith's Patent
Say's Double Action Ratchet © doz, 4 in., \$0.00: 5 in., \$10.20; 6 in., \$12.00—dis 40 % Mallett & Co. 'n Double Action Clutch	Washers.—See Nuts and Washers. Well Wheels
Say's Double Action Ratchet Add os, 41n., 80.00; 51n., 80.00; 61n., \$12.00—dis 40 % Mallett & C. 0., Double Action Clutch Add os, 4 in., 80.00; 51n., 80.00; 61n., 80.00—dis 15 % Hampion Lark's Patent dis 25 %	W-ell Wheels
Screws. Flat H'd Iron, new list, Dec 27, 1882dis 50&10 % Round Head Iron, new list, Dec. 27, 1882dis 44&10 %	Market, Galvanised
Flat Head Brass, new list, Dec. 27, 1882	Stone, Bright and Annealed, Nos. 19 to 26. dis 60 @ 624 g Stone, Bright and Annealed, Nos. 27 to 36. dis 65 @ 674 g Stone, Gaivanized, Nos. 19 to 30dis 424 @ 4 5
Serrews. Fig. H'd Iron, new list, Dec. 27, 1882	Stone, Tinned, Tinned list dis 45 @ 476 \$ Tinned Broom Wire dis 55 @ 576 \$ Cast Steel Wire dis 16 @ 476 \$ Annealed Ferres Nos. 8 & dis 24 & 476 \$
conch. Common or Lag. dia 608.08 to 8 led die 18 led di	Annealed Grape, Nos. 10 to 14 dis 23 6 5 5 Fence Staples. # B 5 6 6 5 6 Pence Staples. # B 7 6 74c
Sench, Wood, Beech	Stubs Steef Wire. \$6.00 to £ dis 30 \$ Japanned Sarb Fence. \$ 5 5 0 Galvanised Barb Fence. \$ 5 5 0
dand Rail, Humason, Beckley & Co.'sdis act of Sand Rail, Am. Screw Co., list of Jan. 1, '81dis 70 % ack (Wilson's). dis 25 %	Judd's Pieture Wire. dis e2103 Clothes Line Wire, Galvanized. F coll 25 2 40c met
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ester, \$10,00.	2½ 6 2½6
runingsee Pruning flooks and Shears.	Coes' Pattern, Malleable
inners' add 6 %, dis 10 % eymour's, List, Dec. 1861	Girard Agl
Shears and Scissors. Merican (Cast) Iron	Girard Standard die 6 5 Girard Agi 9 Dis 7 Standard die 6 5 Girard Agi 9 Dis 7 Standard die 2 St
Hiding Door M W & Co Het 9 Ale 1582 C	The Favorite Pocket (Bright)
ding Door, Patent Rollerdis 60&10&2 % ding Door, Patent Roller, Hatfield'sdis 60&10&2 % ding Door, Russell's Anti-Frictiondis 60&10&2 %	Universal, XX, No. 316
Nas. J. & Sons' list, Doc., 1881	Universal XX, No. 1
bore's Anti-Friction (han jing) dis 45 Shovels and Spades. thee. New list, July 1, 1881 dis 155 rimith dis 1565 dis 1565 dis 1565 dis 1565 dis 1565	Peerloss, with Cogs, No. 3
In Colony dis some & Son, new list. dis some & Son, new list. dis sparse & Son, new list.	Wringers. Universal, XX, No. 316
old Colony. "Ayne Pottebone & Son, new list. dis 1.5 % "Ayne Pottebone & Son, R. R. Shorels. dis 1.6 % "Ayne Pettebone & Son, R. R.	Excelsion No. A. with Folding Bench
-	

30 S

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currence.ent. of Carbonste of Lime, and insoluble Silicious Matter in a Limestone. 10.00 For each additional constituent. 9.00 For each additional constituent. 9.00 For the per cent. of Water, Volatile Combustible Matter, fixed Carbon, and Ash in Coal. 12.50 For determining the constituents of a Clay, Slag, Coke, or of an Ash in Coal the charges will correspond with those for the constituents of an ore. For a written opinion or letter of instruction the charge must necessarily depend upon circumstances.

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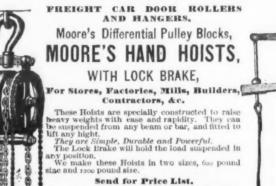
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ATEMA A AAAID.	
IRON.—DUTY. Bars. I to 14cc. \$\psi\$ is Sheet. in Hood and Seroll, 14f to 14fc. \$\psi\$ is provided, that not the above Iros shall pay a less rate of duty it is per cent. Pig. \$\psi\$ ton; Pollahed Sheet. 30. \$\psi\$ Wronght Serap, \$\psi\$ \$\psi\$ ton; Cast Serap, \$\psi\$ ton. I todd, 700. \$\psi\$ to \$\psi\$. Doller and Plate. 1460. \$\psi\$ had.	and one har b
Foundry, No. 1X	
Coitness Pton 34.4c @ 26 Giongarnock Pton 32.00 @ 3 Gartshe r.e. Pton 25.00	2.00 3.00 4.79 3.80 4.50
English Iren. Reacar No. 3, in store	
Wrought 8 rap # ton. from yard 85.00 @ 20 Steet Crt p Ends	
# to 1 in. round and equare } # 2.500 "1 to 6 in. x% to 1 in. Refined Iron: # to 2 in. round and equare } # 2.500 "1 to 6 in. x% to 1 in. "1 to 6 in. x% to 1 in. "1 to 6 in. x% to 1 in. "2 to 6 in. x% to 1 in. "3 2.500 Bands—1 to 5x - 16 to No. 15. "5 2.500 Bands—1 to 5x - 16 to No. 15. "5 2.500 Bands—1 to 5x - 16 to No. 15. "5 300 Sovway Natl Rods.	
Sheet Iren. Common B. G.	
NGS 10 to 30. Wh 3 \$40 450 21 to 34. Ph 4 C 4 C 22 to 30. Ph 3 40 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
Galvanized, 27 9 94c 84c Galvanized, 28 9 h rolec 9 c	
Rusia	ie of %
American Ingot # B See Trade Repor	t.
Erasiers' Copper, 10 os. and 12 os., \$\Psi\$ aq. ft \$\Psi\$ is Braziers' Copper, Lighter than 10 os. \$\Psi\$ af. ft. \$\Psi\$ is Circles less than \$\Psi\$ in. in diameter \$\Psi\$ is Circles \$\Psi\$, in, diameter and over \$\Psi\$ is Segment and Pattern Sheets \$\Psi\$ is \$\Psi\$ is \$\Psi\$.	ic ic
I commotive Pire Box Shoets. Sheathing Copper, over 13 oz. \$\psi_4\$ ag. ft. \$\psi_5\$? Boit Copper \$\psi_4\$ ag. ft. \$\psi_5\$? Copper Bottoms. \$\psi_5\$ ag. Copper is Sheathing except 14x4\$ inches, and not o exceed u. oz. to the sq. ft.	ic ic ic ic ic ic it
#TINNING. Plants is Sheets. 1 to Wag. It. All other size Sheets. 1 to Wag. It. For timing both sides, double the above amount. O'RELLE PATENT PLANERED COFFEE.—Net.	e
14 2nd 16 0x. and heavier \P h 370 By the case. \P h 50 12 0a. and lighter \P h 400 " \P h 39 Roller Sizes. 1n 14x42. \P h 1n 14x50. 14 and 16 0x. and heavier \P h 300 By the case. \P h 38	000
13 and 16 oz. and heavier	e
Brown & Sharp's Gauge the Standard for Metals Old English Gauge the Standard for Wire. PRASS MANUFACTURESS' PRICE LIST.—dls. 30 %. June 10. 1880. Cash prices for Roll and Sheet Brass. For less quanties than 100 hs add 30.	
All Nos. not thinner than No. 28, wider than 2 in., not wider than 11 in	13
All Nos. to No. at inclusive, and widths over sot so in. Inclusive	
C reuler sheets, in diam, from 4 in, to 14, inclusive40	
20 " 35, "	
Uliding Netal. Sc V B more than High Brass	
so ance. Metal, in width 2 in. to 1 in. thinner than No. 28, 30 W B advance. Metal, in width 2 in. to 1/6 in. thinner than No. 28, 30 W B advance.	1
Methi in width is in to is, inclusive, not thinner than No. 28, se w madvance. See in width is in to is, thinner than No. 28, se w madvance. Metal, is in width and less, see w madvance. Any of the above widths cut to particular lengths, add c w m.	BB
GERMAN SILVER MARKET METAL AND WIRE. Market Metal. Wire per cent., 12 tuch to No. 26	BBBBB
German Silver Sheets over 11th wide and weighing more than 1: b. \$2 \mathbb{P} b. Advance 2c. for each additional inch in width above 12 lb. and 2c. \mathbb{P} bo neach No. thinner than Nos. \$6 to	MARAGG
12. Inclusive. All German Silver thinner that No. 56 is Platers', at 500. 9 % additional. 500. 9 % additional. 500. 10 % and Silver Scrap, one-half less than not price of 12 in Market Metal. German Silver Turnings. Fillings and Chips. half the price of Scrap.	GGL
BRASS AND COPPER WIRE. Gild'g and High Brass. Low Brass. Copper. No. c to 2c. \$0.33 \$0.37 \$0.48	In In M O R
NC \$9 42 44 47 68 68 68 68 68 68 68 68 68 68 68 68 68	RRRR
#O.30	SISI
No.35	N N N N N N N N N N N N N N N N N N N
Wifes. Rods. No. 8 and larger, not less than 2 feet lengths. 48c. Wire stranghtened and cut smaller than No. 8 and not less than 2 feet lengths, 43c. Wire and Rods less than 2 feet lengths, special rates. Twelve counts pur b extra for spooling on 1 k spools	Y
Brass Pail Ears	NNN
High Prass Scrap. 156 Low Brass Scrap. 146 Gliding 150 Turnings, Filings and Chirs and the price of Scrap. Terms—Not cach, interest to be added after thirty days.	LI LI BI BI BI Si
Plain to No so inclusive above % in. to 3 in	NWDIE
Nominet. No. 1.4 %, 56, four cents advance on List for each Abure No. 26, special rates. Prints, 4 inch. 76 Prints, 16 inch	To Ex
Prices. Prices (Prices) 10 No. 20. (98 Regitan, Scotch and Extra Patterns Fancy Tubing 9) No. 20. (10 No. 20 Tubing Sawed or Cut 2 to 4 feet long, 2 cents advance on List. 4d d'ye oparis, 16 cent for each additional cutting	MI AS AS BE
Add two sents, 14 cent for each additional cutting	Ob

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	All Mandrel Drawn Tubes under % in. 25 cents per	1
	pound advance. ZINC TUBING—dis. 25 %.	ı
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16	33	ı
h	GERMAN SILVER TUBING.—dis 25 %.	
1.		
	12 Per cent	H
	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
	18 Per cent	
50	18 Per cent. 2 Per cent. 3 Per cent. 4 Per cent. 5 P	
ac	STEEL, DUTY: Bars, ingots, Sheets and Coils,	1
15	above 11. 30 % h: over 11. 340 % h. and 10 % ad val.	ı
15	Railway Bars, 1540 F D. Railway Bars, in part Steel,	l
9	ic # b. Provided, that Metal cemented, cast or made	١.
10	whatever form or description, shall be classed as	1
L.	American Cast Steel.	1
le	American Cast Steel. For American Steel see quotations under heading of Pittaburgh. Ragfish Steet. Best Cast. Best Double Shear Blister, int quality Bister, int quality Bister, int quality Best Bister, int quality	-
0	English Steet.	7
0	Best Cast # 1 15/60	1
0	Circular Naw Plates W 7 166	1
0	Round Machinery, Cast # 5 100	
0	Swaged, Cast # 15 180	
- [Blister, 1st quality.	
- [German Steel, Best. # 5 110 2d quality. # 5 100	
-1	detrinan steel, sest.	
- 1	3d quality P 5 9c Sheet Cast Steel, 1st quality P 5 15/4c	7
- 1	2d quality # 10 14300	1
1	ANTIMONY See Trade Report	2
-1	See 18 quality	3
: 1	Pipe and Sheet, 2%C W B.	2
1	American	2
-	E-mail	34
1	Tin Lined Pipe	3536
-	Pipe 584c. dls ro 8 Tin Lined Pipe 1.4c, dls ro 8 Sheet 7/5c, dls ro 8 Shot Drop 7c, Buck, 8c Chilled Shot 8c	35
1	Chilled Shot	
1	Shot. Drop 7c, Buck. Sc Chilled Shot. Sc N. P. U. BABBITT METAL.	_
-	N. P. U. BABBITT METAL. W B &c A. zec B. zec C. u. Ti W.—Dury Plates. Sheets Tagger and Terne, Lic W B; Electro-galvanised Plates, ze W B; Manufactures of, not enumerated, 35 per cent. ad val. Bars, Block and Pigs free. Banca, subject to duty of 10 per cent.	6
11	TINDUTY. Plates, Sheets Tagger and Terne, 1.10	11
1	* b; Electro-galvanised Plates, 2c * b; Manufac-	18
1	Block and Pies free. Banca, subject to duty of to	15
١.	per cent.	26 26
L	MONANCO CONTROL OF THE PARTY OF	30
11	English # 322 c	90
1	TIN PLATER.	34
1.	C 14830 PrimeCharcoal	,
H	C 14X10 Prime Charcoal Aca	_
l i	X 10X14 (Prime Charcos:	8
1	O 12x12 Frime Charcoal 0.50 X 10X14 Frime Charcoal 7.50 @ 8.00 X 12X25 Frime Charcoal 8.31 X 12X12 Frime Charcoal 5.75 X 125X17 Frime Charcoal 7.15 For each additional X add 1.50 OCKE TIN FLATE.	n
Гi	U 12/4×17. Prime Charcoal 6.75	
1	X 12/4x17, Prime Charcoal 7.25	
	For each additional X add	
I	C 10X14) Set Ordinary C 14X20 Set Ordinary 85.50 \$1.50 \$4.50 \$4.50 \$4.50	
l i	C 14X10	
١.	C 12X12 575 5.40 @ 4.50	
١.	Prime Char. sd Qual. Coke.	
Ì	X 14X20 \$6.24 (\$ 5.50 5.25 5.00	
Ιĩ	C 14x20. \$4.5 \$4.50 \$.25 \$.00 X 14x20. 7.00 C 20xx25. 10.75 \$4.11.23 10.40 X 2*x28. 15.00 C 20xx20. 14.00 C 14x20 M. F. Brand. \$7.37\6 49 L10 ER -\6 2\6 10.40 E 15\600 E 15\6	
ï	X 2+X28 15,00	
lŧ	C 14X20 M. F. Brand	
10	OLDER—4 2 14	
h	O. 1	
26	PELTER DUTY: In Pigs, Bars and Pites, \$1.50	
	# 100 B.	
3	INCDUTT Pig or Block By to B too \$ 5.25	
-	2)40 W B.	
8	heet. Cask	
40.	0. 1 196c PKLTER.—DUTY: in Pigs, Bars and Pites, 11.50 merican. cash	
	Paper Stock, &c.	
	(Dealers' Selling Prices.)	
55	Thite Shirt Cuttings We t	

Tuber proces, etc.	
(Dealers' Selling Prices.)	ents W &
White Ohist Cuttings We s	ents w m
White Shirt Cuttings. Ro. I 7	9 77
White Shirt Cuttings, No. 2 4	9 57
Mill Assorted Whites 534	199 555
Unbleached Muslins	(6 0%)
City Whites. No. 1	190 5.
New Canton Flannels	GB 054
New seconds light 35	G 374
New Seconds, dark 3	G 351
No. 2 Wnites	(68 2)4
Cotton Canvas. 49 Linen Canvas, No. 1 49	199 471
Seconds City No. 1	SP 421
Seconds, City No. 1	100 174
Seconds, City No. 2 114	(B) T-96
Colors, per 100 bs 70	(8) (6)
Mantia Rope. Mantia Rope. Mantia Kope, Tarred. Gunay Bagging, No. 24 Gunay Bagging, No. 21 Fautuck Rog. 15	399
Change Rope, Tarred	66 251
Gunny Bagging. No. 1	160 234
Gunny Bagging, NO. 2 1%	(B 134
	68 459
Burlap Bagging, No. 1	@ 254
Tar Shakings 2	@ 234
Hemp Twine Stock 416	G 474
Hard White Shavings, No. 1	69 444
Soft White Shavings. No. 1 314	GB 334
White Shavings, No. 2, soft	G 374
Mixed Shavings, part white 256	@ 3
Ledger and Writing	6 14
Solid Stock	108 274
Solid Stock. 256 Book Stock, No. 1, light. 124	(I'o
	@ 134
Pure Manilus 2	GB 256
Bogus Manilas and Hardwares	@ I
Commons per 100 lbs	(B 70
Binders' Board Cuttings	@ 1'4

Paints, Vils, &c.

Megal in width 1/4 in. to 1/4 thinner than No. 28, 92 W m	
Metal 14 in in width and less rec # 3 advance.	Paints.
Metal. 14 in. in width and less, see # 3 advance. Any of the above widths cut to particular lengths. add	Black Lamp, Coach Painters. Black Lamp, Ordinary. Black Lamp, Ordinary. Black Ivery Drop, fair. Black Ivery Drop, best. Black Ivery Drop, best. Black Paint, in oil. Kegs 8c; aast'd cans, bluc Prussian, fair to best, in oil. Since Chinese dry to best, in oil. Since Chinese dry. Bluc Chinese dry.
70 ¥ B.	Black Lamp, Ordinary
OWNERS OF THE WARRET METAL AND WIRE.	Black Ivory Drop, fair
Market Metal. Wire	Black Paint in oil kees for centid come
	Blue Prusaian, fair to best
	Blue Prussian, fair to best, in oil
0 " " "	Blue Chinese dry
1 to to to to 1.12	Blue Ultramarine
German Silver Sheets over 12in, wide and weighing	Blue Ultramarine
	Green Chrome
Advance 2c. for each additional inch in width above 12 ip. and 2c. F B on each No. thinner than Nos. 26 to	Green, Chrome, in oil.
12 ib. and 2c. W is on each No. thinner than Nos. 26 to	Green, Paris
12, Inclusive. All German Silver thinner that No. 36 is Platers', at	Green, Paris, in oilgood, 30c; best,
rec 10 m additional.	Tron Paint, Bright Red P h 2
Carried Silver Scrap, one-half less than het brice of	Iron Paint, Purple
12 in Market Metal. German Silver Turnings Fillings	Iron Paint, Ground in oil, Bright Red
and Chips, half the price of Scrap.	Iron Paint, Ground in oil, Red # 8 5
BRASS AND COPPER WIRE. Gild's and	Iron Paint, Ground in oil, Brown # 10 5
High Brass. Low Brass. Copper.	fron Paint, Ground in oil, Purple P D 6
No a to a: 80.00 80.07 80.48	Mineral Paints2 @
50 40 46	mineral Faints 26 Orange Mineral
No. 50	Red Venetian (Eng.) dry
No.23	Red Venetian, in oil asst'd cans, ric; kegs,
	Red Indian dry9 @ 1
NO.24 40 44 40 NO.25 43 47 53 NO.30 4 49 55 NO.30 4 6 52 58	Storms American Row nowdered
No.3645 -49 -55 No.3748 -52 -58	Sienna, Burnt, nowdered
	Rose Pink 10 6 1 1 10 6 1 1 10 6 1 1 1 10 6 1 1 1 1
NO.2055 .59 .66 NO.3068 .62 .72	Sienna, Raw 15 @ 15 @ 20
NO.30 55 69 65 NO.30 96 52 72 NO.31 62 66 76 O.32 56 70 84	Umber, Burnt, powdered4 @
NO.31	Umber, Burnt, in Oil
NO.23	Umper, Raw, in oil
No.34	Sienna, Burnt, in Oil. 10 @ 16 @ 2 Sienna, Raw
No.34 .74 .75 Log Spring Wire 20 W B advance Flat Square and Half-Round Wire 50 W B advance	Vermilion, English46 @ 4
Flat Square and Half-Round wire 50 w advance	Vermition, American, Common. White Lead, American pure in oil. White Lead, American, pure in oil. White Lead, American, pure in oil. White, Parus, Sagiian, prime in bois, a @ 2º Yellow Ochre, French. Yellow Cohre, Preuch, in oilassi'd cans, inc; kegs, Yallow Ochre, Vermont in casks, i'l rellow Chrome 17 @ 2º Yellow Chrome, in oil
on Bound Wire. Fancy Wire not less than roc # 5 advance on Round	White Lead, American pure in oil
ti the	White, Paris, English, prime
Brass Rods, No. 8 and larger, not less than 2 feet	Yellow Ochre, French
lengths, sic.	Yellow Ochre, Freuch, in oll. asst'd cans, mc; kegs,
Wire straightened and cut smaller than No. 8 and	Vellow Chrome, vermontln casks, 15
not less than 2 feet lengths, 43c. Wire and Rods less than 2 feet lengths, special rates.	Vellow Chrome, in oil
Twelve cents per h extra for spooling on : h spools	Zinc White, American No. 1, ary.
No sh	Zinc White, American No. 1, in oil
Brass Pail Ears	Zinc White, French (Paris) dry
Brass Paul Ears.	Oite.
Brass Door Rail	Linseed, Raw, in casks and bbls sec @ :
High Prass Scrap120	Linseed Boiled, in casks and bbis
Low Brass Scrap	Ulti- Linseed Raw in casks and bbis. 500 @ 0 Linseed Bolled in casks and bbis. 500 @ 0 Linseed Calcutta 500 @ 50 Reached Whate. 97 gal.07 Reached Sperm 7 gal.07 Reached Sperm 8 gal.07 Reached Lephant 5 Reached First 8 gal.07 Reac
Gilding. Turnings, Filings and Chirs dail the price of Scrap.	Bleached Whate gal.or
Terms-Not carh. Interest to be added after thirty	Bleached Flenhant
days.	Signal
TUBING dis. so 5. # B	Prime Lard
Plain to No so inclusive above % in. to 3 in \$6.43	No. 1 Extra
Plain above vin	West Virginia
Number.	Miners Off
Nos. 14. 25, 26, four cents advance on List for each	Flah Oil, pressed
Number.	Neatsfoot
Abore No. 20, special rates.	Tallow 700 @ 7
Phon. 5 inch. 78 Phon. 5 inch. 1.49 Phon. 5 inch. 1.49 Phon. 5 inch. 1.60 Alfondrei Drawn Tubes. 5 cents advance on List	Machiner Cylinder Oil
Druhy to (not)	Engine
All Mandrel Drawn Tubes, 5 cents advance on List	Aundrica.
	West Virginia
Fancy Tubing to No. 20	Mineral Wool, extra b 3 @ 316
Magilin, Sootch and Extra Patterns Fancy Tubing	Asphaltum Cuban
Tubing Sawed or Cut 2 to 4 feet long, 2 cents ad-	Rensine Sige @ 9
vance on List.	Mineral Wool, ordinary. # 51 @ 144 Mineral Wool, extra. # 53 68 34 Asphaltum Cuban. 90 68 Asphaltum Egyptian 8866 60 Bensine. # galge & 17 Chalk.
vence on List. Add two eachs, % cent for each additional cutting	Ohais. Slock. Dryes, Fatous, Am'h
hrqs5.1 goog	Dryer, Federal, Am'B

	Double Double SIEES.	Thick. #813.00 15.75 20.00 22.00 24.00 25.00 17.00 30.00 31.50 33.60 37.00 *** *** *** *** *** *** *** *** *** **	26.00 20. \$1e.25 14.75 18.50 20.00 23.49 23.55 28.00 29.00 31.40 34.00	23.75 3d. \$11.75 14.00 17.75 19.25 20.00 24.00 26.25 28.60 32.00	4th
	Double	Thick. #81.00 15.75, 20.00 22.00 24.00 25.00 37.00 30.00	\$16.25 14.75 18.50 20.00 22.59 23.60	3d. \$11.75 14.00 17.00 17.75 19.25 20.00 22.00	-
	Double SIXES. 6 X 8 to 10 X 15. 11 X 14 to 16 X 34. 18 X 22 to 20 X 35. 15 X 36 to 24 X 39. 26 X 36 to 24 X 39. 26 X 36 to 26 X 34.	Thick. #813.00 15.75, 20.00 22.00 24.00 25.00	\$16.25 14.75 18.50 20.00 22.59 23.60	3d. \$11.75 14.00 17.00 17.75 19.25 20.00	-
	81XES. 6 x 8 to 10 x 15. 11 x 14 to 16 x 34. 18 x 22 to 20 x 30. 18 x 20 to 24 x 50.	Thick. 18t. 813.00 15.75 20.00 22.00	\$10.25 14.75 18.50 20.00	3d. \$11.75 14.00 17.00 17.75	-
	0 x 8 to 10 x 15	Thick. 18t. 813.00 15.75 20.00	\$10.25 14.75 18.50	3d. \$11.75 14.00 17.00	-
The second second	Double SIXES. 6 x 8 to 10 x 15	Thick. 18t. 813.00 15.75	\$10.25 14.75	3d. \$11.75 14.00	-
	Double	Thick.			4th
	Double	Thick.	26,00	2%.75	_
			25.00	22.75	
	34 X 56 to 34 X 00	25.25	23.15	21.50	
	30 x 56 to 34 x 5	24.00	2:.00	1 89.75	
200	90 W 52 CO 90 W 54	22.76	27.00	18.00	
	26 X 36 to 26 X 44		17.95	14.50	
6	26 X 28 to 24 X 36	1 17.50	10.00	14.00	
t	15 X 36 to 24 X 30		13.75	13.40	11.50
2	11 X 14 to 16 X 24		10,75	10.25	9.50
0	6 x 8 to 10 x 15		\$ 9.25	\$ 9.00	# 8.44
	SIZES.	181.	26.	3d.	4th.
	Single	phopological in the column of		- 4	
0	Prices current pe List, Januar	ar board		tet.	
c	Waste, No. 2 Colored				20
f	Waste, No. 2 White Machine	D			
f	Whiting Spanish				0 (6 510
6	M & N			. #9.on	@ Rg. 26
l,	I & K				@ 82.50
١ŧ	E & F	1361.061		82.10	@ \$7.30
50 8,	Rosin-Common and Good	Strain			214C
C	Putty in bladders				76.73
31	Pine Tay, both,				
20	Punice Stone, Powdered				294C
QX CX	Pumice Stone selected La	mne		******	756C
80		C	*****		350
5	Gum Shellac, English	******			240
	3 [Gum. Consl				afer
3	7 Glaziers' Points, Zine			*******	8c
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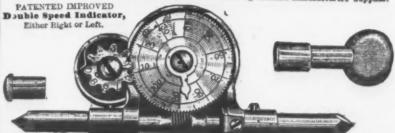
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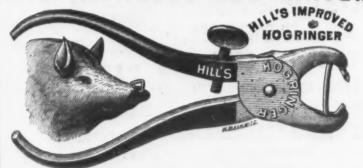
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	ZINC TUBING-dis. 25 %.
HON.—DUTY. Bars, I to thic. W n; Sheet, I Book and Scroll, in to inic. W n: provided that of the above iron shall pay a less rate of duty at per cent. Fig. 2; W ton; Polished Sheet, 30. Wrought Scrap, 26 W ton; toea, 700. W no. Boiler and Plate, 1160. W no. 100. Boiler and Plate, 1160. W no.	Plain Scotch and Extra Patterns Scotch and Extra Patterns Fe and GERMAN SILVER TURING.—(HB 24, 1 Fer cent I Per cent I Pe
toad, rot. 7 too b. Boiler and Plate, 114c, 7 b. American Iren.	Per cent.
A merican Iron. Boller and Plate. 156. Wh. A merican Iron. Foundry. No. 1x	5 Per cent. 20.50 Per cent.
Gray Forge. \$\psi \text{to} \text{ 19.50 } \text{ \$\psi\$ \$\psi \text{to} \text{ 19.50 } \text{ \$\psi\$ \$\psi \text{to} \te	18 Per cent. 22.00 27 Per cent. 28 TEEL.—DUTY: Bars. Ingota, Sheeta 28 BTEEL.—DUTY: Bars. Ingota, Sheeta 29 BTEEL.—DUTY: Bars. Ingota, Sheeta 29 BTEEL.—DUTY: Bars. Ingota, Sheeta 29 BTEEL.—BUTY: BARS. Ingota, Sheeta
Giangarnook # ton 22.00 @ 3	14.75 Railway Bars, 1340 F. Railway Bars, in 10 F. R. Provided, that Metal cemented, confrom Iron by the Bossemer or pneumatic
Redcar No. 3, in store w ton Nomi	whatever form or description, shall be cla American Cast Steel. For American Steel see quotations under
Steel at "astern mills \$ ton 23.00 @ 2 Old Rails J H \$ ton 27.00 @ 2	Pittsburgh. Bugitsh Steel. 4.50 Best Cast.
Wrought 8 map # ton. from yard 25.00 @ 2	6.50 Round Machinery, Cast
Bar Iron from Store.	Best Double Shear Blister, 1st quality
to a in. round and square	ad quality ad quality Sheet Cast Steel, set quality
i to 6 in. x4 to 1 in. B 2.50c	ad quality ad quality ANTIMONY See Tra
Too in year to 1 in. Refined from: If to 2 in. Found and square	si quality 3d quality Sheet Cast Steel, 1st quality. 3d quality 4d quality 5d quality 5d quality 6d Place of the steel of
Sheet Iron. Common American American Nos 10 to 20	1994
Nos 10 to 20. Marrican American American Marrican Marr	Shot. Drop 7 Chilled Shot.
98 # 15 456 456 456 456 at qu Galvanised to to 20 # 15 7/40 7 c	A offer B ores C ve
Calvanised. 10 to 39. W B 7/40 7 c Galvanised. 11 to 24. W B 5/40 7/40 Galvanised. 25 to 26. W B 9 c 8 c Galvanised. 27 W B 9/40 8/40 Galvanised. 27 W B 9/40 8/40	Tin.—Duty Plates, Sheets Tagger and T Th: Electro-galvanized Plates, at This tures of, not enumerated, 35 per cent ad t Block and Pigs free. Banca, subject to
Galvanized 25 W 5 1046 Patent Planished A W 5 1046 B. 0466 Russia D 11 @ 12	
Russia. \$\psi\$ 109c 16 12 American Cold Rolled. \$\psi\$ 10 40 40 40 40 40 40 40 40 40 40 40 40 40	6c Straits. English Of TEN PLATER.
ad valorem.	I C verea PrimeCharooal
8-asler Copper ordinary sizes, 16 oz. per sq. ft., and o er \$ 500000000000000000000000000000000000	oc. I X 14X20 Prime Charcoal I X 14X20 Prime Charcoal D U 1244X12 Prime Charcoal
and over 12 oz., w sq. ft	OC D X 12)4X17, Prime Charcoal. For each additional X add.
American Ingot	IC IC IC
Sheathing Copper, over 12 os. # sq. ft. # B 2 Bolt Copper. # B 2	TERME PLATE. Prime Char. ad Qual.
Bott Copper. # 5 at Copper Bottoms. # 5 at G at Act Copper Is Sheathing except 4x4\$ imones, and act to exceed 44 02. to the sq. ft.	I C 14330 \$8.25 (3 5.50 5.25) I X 14330 7.00 I C 30328 10.75 (2 11.25 10.50 12.
All other size Sheets. 'ye. Wag. ft. For timing both sides, double the above amount. O'NELLS PATENT PLANSHED COPPER.—Net.	I C 14X20 M. F. Brand.
14 and 16 or. and heavier. We have by the case. We have and lighter. We have have have have have have have hav	ZINCDUTT Pig or Block, \$1.40 \$ 100 B
	C # 160 B. American. cash. ZIRC:—DUTY Fig or Block, \$1.50 \$\psi\$ 100 \$\mathbb{B}\$ Sheet. Cask. Sheet. Open
11 and 16 oz. and beavier. What	Paper Stock, &c.
Brown & Sharp's Gauge the Standard for Metals Old English Gauge the Standard for Wire. BRASS MANUFACTURERS' PRICE LIST.—dis. 30 %.	(Dealers' Selling Prices.)
Cash prices for Roll and Sheet Brass. For less quan ties than no be add sc. # B.	White Shirt Cuttings. No. 2.
All Nos. not thinner than No. 28, wider than 2 in., not wider than 14 in	City Whites. No. 1. 484
All Nos. to No. 28. inclusive. and widths over 20 to 30	New Seconds, dark 3
in. Inclusive.	Linen Canvas, No. 1 494 Seconds, City No. 1 156
clusive All Brase thinner than No. 56 is Platers' Brass. at 536 Sheets 24x45. and all sheets out to particular sizes and lengths under 30 in., in with wider than 2 in .556 Printers' Rules	Colors, per 100 Bs. 700 Maniia Rope. 700 Maniia Rope. Tarred.
Stients wither them to in and owns	Gunny Begging, No. 2
C reulsr beets, in diam. from 4 in. to 14, inclusive. soc 0. 450 in. and 0. 450 i	Gunnv Bagging, No. 2. 186 Keatucky Bagging 456
C reuler sheets in diam. From 4 in, to 14, inclusive	Gunny Bagging, No. 2. 184 Keatucky Bagging 48-9 Burlap Bagging, No. 1. 28-4 Tar Shakung 2. Herm Twine Stock. 48-4 Hard White Shavings, No. 1. 44-6
e in. and over. C reuls: Theots. in diam. from 4 in. to 14, inclusive. co. Over 14 20, 20 30, 40 50 1 20 40, 41 50 Low mass. Four cents F & mere than High Brass. Ull Bars.	Gunny Bagging, No. 2 Keutucky Bagging,
colling theory in diam. From 4 in, to 14, inclusive, or 12 inclusive, or 1	Gunny Bagging, No. 2. 18, Keatucky Bagging. 48, Heatucky Bagging. 48, Burlap Bagging, No. 1. 24, Burlap Bagging, No. 1. 24, Tar Shakings. 2. 2. Hemp Twine Stock. 44, Hard White Shavings, No. 1. 34, Soft White Shavings, No. 1. 34, White Shavings, No. 1. 34, White Shavings, No. 2, soft. 34, White Shavings, No. 2, soft. 34, Soft White Shavings, No. 2, soft. 35, Soft White Shavings, No. 2, soft. 34, Soft White Shavings, No. 2, soft. 34,
coruler theets, in diam. from 4 in, to 14, inclusive, occurred to 10 and	Gunny Bagging, No. 2. 18,
C reuls: Theots. in diam. From 4 in. to 14 inclusive. 600 over 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	Gunny Bagging, No. 2. 18,
as in. and over. C reuls: Theots. in diam. from 4 in. to 14. inclusive	Gunny Bagging, No. 2. 18, Kentucky Bagging. 46, Burlap Bagging. 46, Burlap Bagging, No. 1. 24, Tar Shakings. 2, Hemp Twine Stock. 44, Hard White Shavings, No. 1. 34, Soft White Shavings, No. 1. 34, White Shavings, No. 1. 34, White Shavings, No. 2, soft. 34, White Shavings, part white. 36, Ledger and Writing. 3, Solid Stock. 34, Commons part of the Markey Stock. 34, Commons per 10 ibs. 36, Commons per 10 ibs. 36, Commons per 10 ibs. 36, Straw Board Cuttings. 156, Straw Board Cuttings. 157, Straw Board C
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Add we send: 14 cent for each additional cutting Chair. Stock.
Add we send: 14 cent for each additional cutting Chair. Stock.
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nued at 70 # B. or under, 2%0; over 70 and not	E&F			\$2.10	@ \$2.
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Browlded that Metal compares, in part steel,	1 & K	*******	*******	\$2.60	@ \$2.
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WEIMON'V See Trade Report	18 X 22 tO 20 X 30	14.75	13.75	12.50	11.5
D. Desert Co. C.	16 X 30 to 24 X 30	10.50	14-75	13.00	1
A D.—DUTY: Pig. \$2 ₩ 100 B Old Lead, .040 ₩ B be and Shoot, 340 ₩ B. rican	96 X 96 to 96 X 44	18.76	87.95	14.50	
rican	26 F 46 CO 20 F 50	20.50	10.95	VA 50	1
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aned Pipersc. dis to \$	34 X 58 to 34 X 60	25.25	33.15	21.50	
t	36 x 60 to 40 x 60	38.50	26.00	28.75	
Drop 70, Buck, 8c	Double '	Thick.			_
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ec ; B. 300; C. 16.	77 X 14 to 16 X 34	16.76	14.76	14.00	@ # # · C#
-Duty. Plates, Sheets Tagger and Terne, 1.10	18 X 22 to 20 X 30	20.00	18.50	17.00	
; Electro-galvanised Plates, 20 W B; Manufac-	15 X 36 to 24 X 30	22.00	20.00	17.75	
DUTY Plates. Shoets Tagger and Terne, 1.1c; Electro-galvanized Plates, 2r # B; Manufaces of, not enumerated, 35 per cent. ad val. Bars, ck and Pigs free. Banca, subject to duty of 10	26 X 28 to 24 X 96	84.00	33.50	19.25	
cent.	26 × 26 to 26 × 44	25.00	23.50	20.00	
COURS. W W cal/o			35.25	32.00	
₩ 10 22 1/40 6₩ 10 22 1/40	26 x 46 to 30 x 50	27.00		24.00	
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sh # B22340	36 x 46 to 30 x 50	37.00 30.90 31.50 33.60	28.00 29.00 31.40	26.24	
TEN PLATER.	26 X 46 to 30 X 50	37.00 30.00 31.50 33.60 37.00	28.00 29.00 31.40 34.00	26.25 28.40 32.00	
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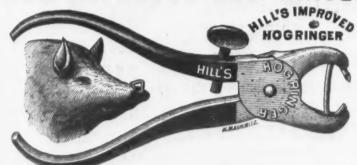
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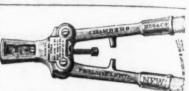
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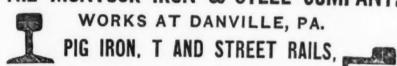
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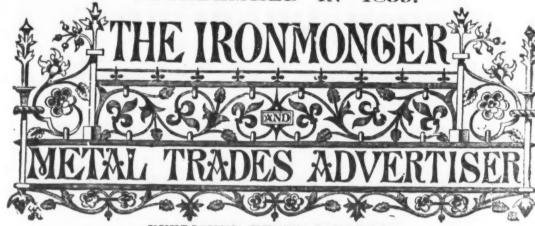
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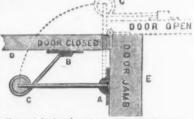


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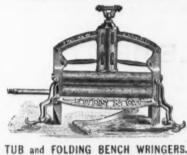
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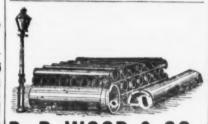
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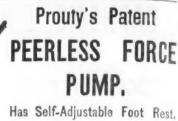
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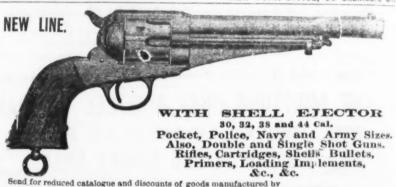
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Maion 201	
PHILADELPHIA.	Round Round
Corrected Weekly by Lloyd, Supplies & Walton.)	Speens
Der come ber annual	Tinned
Antis- Peter Wrights. # 5	Gem N Coll N Other
Apple Parers	Warne Standa Single
Axes. Hunt's Kentucky and Yankee.per dos \$10.00 (d) 10.50 - 80.00 (d) 89.25	Other Stocks Stove I
Axes. Hunt's Kentuckv and Yankes.per dos \$10.00 (6) 10.50 Robert Mann	Pire Fi Tacks.
Augers and Auger Bits.—New List January 7, 1880 Rates' Nut Augers	Double Traps. Genuir
Double Bit Axes. Bet \$10,00 og 70.00 Augers and Auger Bits. New List January 7, 1880 Bates' Nut Augers. dis 48% 105 Coos's Augers. dis 15, 20 Watrous' Ship Auger Bits. dis 15, 20 Benjamin Pierce Auger Bits. dis 45% 105 Cook's dis 45% 105 Cook's dis 45% 105 Jennings' Det Mol Augers list 8, 86 8 dos, 418, 25% 105 Jennings' Det Mol Augers list 8, 86 dos, 418, 25% 105 Jennings' Det Mol Augers list 8, 86 dos, 418, 25% 105 Jennings' Det Mol Augers list 8, 86 dos, 418, 25% 105 Jen	Genuin im. On Vises Wrene
Bonney Brat. Hot. Augers, list \$48 W doz. dis 20&10 %	Coes'
Light and Commondis 15&10 %	Bright
Sells. Revin Bros. Mfg. Co. Light Hand Bells dis 65&10 9 Revins Pattern Hand Bells low list dis 45&10 3 Conneil's Door Bells dis 10 9 Gt. Wosto n & Kontucky Cow new list dis 10 9	Coppe Tinned Galvan
Upright, without AugersList 5.50 dis 45@50	Wring
Bolts.—Eastern Carriage Bolts	Univer
Stantey, Wronghe Stantes, Carlo Stan	Excels In lots o
American Ball Butts,—Cast Fast Joint, Narrow	In lots o
Acorn. Loose Pin	TERMS rate of e
Mayer's Loose Joint 415 coz. 10	For
Bilind Butts discrete discr	The f.
Comman Galter and Call lies Deserving	1 137 10 6 1
Chairns.—German hatter and Coll. inst December 31. 185	1 to 17
Socket Firmer	234 to 334 334 to 4 444 to 4 34 to 3
Coffee Mills.—Box and Side, new list Jan. 1, 1850	% to 1%
Butche's. —\$5.00 to & gold Casters.—Bed (new list July 1, 1880,) dis acking) Plate dis 40% to Coffee Mills.—Box and Side, new list Jan. 1, 1880	to ite
Adjustable Handiedis 15	152
No 0 1 3 3 4 5 6 9.00 10.0	3 to 6 1 to 3 1 to 3
Burnished	% and
Nicholson	
Eagle—\$\(\) \(\)	s and
Favorite com. Fluter & Sad Iron W dog #to to ne	a le inch
Hammers. dis 30 Kaylole Hammers. dis 15 Howell A. E. Nati Hammers, per dos. net \$4.7 Bridders, on Handles Crossont	154 to 4.
Boynton Loop Handles Crosscut33c pair ne	134 to 2.
Bunt	15-16. I.
Hinges. Strap and T. Horse Nalls. Nos. 5	15-10, 1, 1 36, Nos. 36, Nos.
Po'ed and P't'd # Blued & P't'd31 28 26 25 24 23 dis 33\6 Clinton	% No. 2
	0 13-10, NO
William Straw Knives	Nos
Locks and is nobs Brailord New list dis 4s 2	94, Nos. 2 94, No. 2 94, No. 2 11-10, No 11-10, No 10-10, No
SO \$7 98 90 60 62 62 63 dls 60 7 due	11-16, No 11-16, No 16, Nos.
Buctros. Buctrope. Large list net; small list ne Tuoular No. 0, \$855; No. 1, \$10.15 \(\) dos ne Guards, avenus extra per doz. net. Lawa Howers.—Pennsylvania. Philadelphia Excelsior. Lawa and Garden.	t % Nos. 2
	9-10, NOS
Long and Short Cutter	9-16, No. 9-16, No. 9-16, No. 56 inch,
Mabbins Gates	b 278
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	lighter is to speci
American dew list, dis 52, 10.82 consi Stuffers dis 25, Enterprise Stuffers dis 25, 25, 25, 25, 25, 25, 25, 25, 25, 25,	g to 11 ll 8 lbs. an Less the
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Batchers Adjustable disserting	No. 9 an Plow Sl
Picks. New listdia 65&10	No. to to
Imitation Emerson. I gross lots 842.0 Ruien, etanley Boxwood, dia 2 8 10	No. 22 to No. 25 &
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Guares, 60 10,25 13.75 15.60 16.75 19.5	Nos. 14
Try squares, Stanley dis 50 %; full case, dis cokto Disaton's Try Squares, dis cokto	Nos. 21 1 Nos. 25 1 4256 @
Charge Vo. Pressure and dos \$8.50	236, 3, 35 c 136, 136 3
Sharpened " anniou Hed, Boxed and Res Dission's Band, Panel and Rip	5 156, 156 1 134 inch 5 156 by 1 5 156 by 34
Shartenad, Fainted Red, Boxed and Shartenad, Fainted Red, -Usaton's hand, Panel and Rap. dis so Deston's Circular. A Panel and Rap. dis so Cross Cut No. 2, Piain Tootn. dis 40 Fatens Tooth. dis 40 Champion Tooth. dis 40 Champion Tooth. dis 40 Reynton's Lightning Cross Cut, new list. dis 50 Chowele and Circular Cross Cut, new list. dis 50 Chowele and Rap Cross Cut, new list. dis 40 Clivar Annes grades.	5 1% by %
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Silps	Drag B

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ASS.

LL. JSTI.

CO.,

Corrected Weekly by Lloyd, Supples & Walton.)	Round Head Brass, new list Dec. 27,dis. 40 & 10 & Round Head Iron, new list Dec. 27,dis. 45 & 10 & Peous.	1
erms, 30 days. For 60 or 90 days, interest added at 10% per cent. per annum.	Britannia, Boardman's dis 60 % Parker's dis bo&10 % Tinned dis 10 %	36 1-1 54
Peter Wights. 111/60 (yer 200 lbs. 103/	Springs - Torrev dis 40&10 5 Gem No. 3 small Jap'd \$2.00 dis 50 5 W No. 2 medium Jap'd 2.75 \$3.00 dis 50 5 d	3-
Apple Parers	Other Standard Springs	O
Bay State Peach Parer		0
Funt's Rentucky and Yankee.per dox storous to the Fobert Manb	Single No. 0, per doz. nec. 1.45	7.3
Boveled Ares. net \$10,00 @ 20.00 Double Bit Ares. net \$10,00 @ 20.00 Augers and Auger Bits. New List January 7, 1880 Mar Augers. dis 45% 10 5	### ### ### ### #### #################	ti
A greers and A greer bits. A greers and A greers. Cook's Augers. A green dis 40% 10 % 10 % 10 % 10 % 10 % 10 % 10 %	Genuine Oneida—Newhouse diw 15 %	CO
Griswold Auger has dis 40% of 5 Cook's dis 40% of 5 Sennings Pat. Hol. Augers, list \$48 % doz. dis 20% of 5 % of 5	Im. Onelda—Newhouse list, first qual. dis 5,6% c @ 6 x Vises. — Solid Box Trenton new list dis 3,6	T
Light and Commondis 158 10 %	" Mail. Bar dis 75 % Wire. Bright or Ann'd, No. o to 18. dis 50 to 52% %	1
Bells Bros. Mfg. Co. Light Hand Bells dis 65&10 % Bovin Bros. Mfg. Co. Light Hand Bells low list dis 40&10 % Connell's Door Bells dis 10 % Ce. Wigged n & Kentucky Cow new list dis 10 % Ge. Wigged n & Kentucky Cow new list dis 60 %	Bright or Ann'd, No. o to 18	AAF
	Galvanized No. 7 to 18 Market List, dis 42% to 45 %	P 81
Berins Hachines. Upright, without Augers. Angular, without Augers. Bolts.—Eastern Carriage Bolts Philadelphia new list dis 70% 10 % Stamey, Wrought Shutter dis 50% 10 % dis 50% 10 %	Wringers, \$12 oc Peeriess No. 2½ \$52 oc No. 2 45 oc Universal No. 2½ 42 coc No. 2 45 oc No. 2 45 oc No. 2 45 oc No. 2 45 oc No. 3 40 oc No. 3 40 oc Excelsior E for stationary tubs 50 oc In lots of 1 dos. \$2 oc 60 oc dis. from above price.	TTPC
Philadelphia dis sozio S Stanies, Wrought Shutter. dis sozio S Braces.—Barber's dis 40cs S discos	Novelty No. 2, for common tubs. 42.00 No 3, 0 42.00	Reit
	Excelsior E, for stationary tubs, 51.00 Find In lots of 1 dos. \$3.00 dos. dis. from above price.	
American Ball Bulls.—Cast Fast Joint. Narrow. dis 45% to 5 Eroad. dis 45% to 5 Cast Loose Joint, Narrow. dis 55% to 5 Acorn. Loose Pint. dis 55% to 5 Acorn. Loose Pint. dis 55% to 5 Mayor's Loose Joint. dis 55% to 5 Mayor's Loose Joint. dis 55% to 5 Trought Loose Pint. dis 55% to 5 Trought Loose Pint. dis 55% to 5 Cast Loose Joint. dis 55% to 5 Cast Loose Pint. dis 50% to 5 Cast Loose Pin	PITTSBURGH.	8
Acora. Loose Pin	TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 per cent, for cash, if remitted within 10 days from date of	B
Wrought Loose Folk. dis octors Wrought Loose Film. and Back Flapsdis octors Table Hinges and Back Flapsdis actors 'Agrow Fast. dis 45% to 4 Loose Joint. dis 50% to 5 dis 50% to 5	For fluctuations and discounts	C S
Blind Buttm.	on card rates see weekly Pitts- burgh Trade Report. The f. flowing are card rates.	S
Parker	The f. Howing are card rates. 1/4 to 4 by 3/4 to 1 Inch. 2.5c 1/4 to 5 by 1/4 to 1/5 2.5c 1/4 to 5 by 1/4 to 1/5 2.5c 1/4 to 1/4	MTH
Uhains.—German Halter and Coll. list December 31. 1881. dis 45@ 50 % Galvanized Pump. b 9%c net Bout Proof Coli Chain—English.	154 and 176 by 36 to 34 " .2.00 1 and 156 by 36 to 34 " .2.00 56, 34 and 36 by 36 to 36 inch .2.70	8
Chains - German natter and coll. list December 31. 180	1 to 176	12
Casters, - Bed (new list suly 1, 1000)dis 40&10 %	33/4 to 3	ST
Coffee Mills.—Box and Side, new list Jan. 1.	Ocal from. 36 to 136	FEE
1850	34 to 134 inch	080
Goodnow Mfg. Co. and Meriden Cutiery Co., Manufacturers' prices net. Drawing Knives.	% to 1)4 by 5-16 to 74 inch. 3.46 Wagon Box Iron. 3.46 74 Inch, Nos. 13 and 14. 3.76	S
Adjustable Handledis 15 %	34 " 13 and 14 1.00 14 " 11 and 12 3.80 15 " 13 and 14 3.80	HA
Tinaed. dis 4 5 8 Burnished. dis 9,5 4 5 6,50 7.00 8.00 3.75 4.25 4.75 8.45 0.00 7.00 8.00 9.00 10.00 12 3 4 5 6 7 0 8.00 10.00 10 10 10 10 10 10 10 10 10 10 10 10 1	34 to 6 by 4 and 5-18 22.70	8080
	\$ 10 \$\frac{4}{5}\$ \cdot \frac{5}{5}\$ \cdot 5	B
MicholsoB	154 to 6 by 14 to 3-16 . 3.00 154 to 5 by Nos. 11 and as . 3.10 1 to 134 by 54 to 3-15 . 3.10	B
Fluting Machines. Eagle-pis in roll each, \$2.15 dis 25 \$ 2.85 dis 25 2.85 dis 25 dis	3.20	8 8
" -6 in. roll	44 and 11-16 by Nos. 11 and 12 3.80 54 and 9-16 by \$6 b 3 16 4.00 56 and 9-16 by Nos. 11 and 12 4.00 4.00	8 8
Verkes & Plumb's new Het	1 to 136 by Nos. 11 and 12. 3-10. \$ and 11-10 by \$ to 9-10. 3-20. \$ and 13-16 by Nos. 11 and 12. 3-55. \$ and 13-16 by Nos. 11 and 12. 3-55. \$ and 3-10 by \$ to 3-10. 3-20. \$ and 3-10 by \$ to 3-10. 3-20. \$ and 9-10 by \$ to 3-10. 4-00. \$ and 9-10 by \$ to 3-10. 4-00. \$ and 9-10 by Nos. 11 and 12. 4-10. \$ and by Nos. 11 and 12. 4-10. \$ and by Nos. 11 and 12. 4-10. \$ and \$ to 9-10 by Nos. 11 and 12. 4-10. \$ and \$ to 9-10 by Nos. 11 and 12. 4-10.	PHS
Maydole Hammers. 438 30 3 18 15 % 18 1	154 to 2, No. 16, 17 and 18. 3.40 154 to 2, No. 19. 3.50 154 to 2, No. 20. 3.50 164 to 2, No. 20. 3.50	P
Yerkes & Plumb, new listdis 30 fl	15-10 1, and 116. Nos. 13, 14 and 16. 3.60 15-16. 1. and 116, Nos. 16. 17 and 18. 3.60	1
Hinges. Strap and T	14-16. 1, and 156, No. 21	2
Vulcan	76. NOS. 16, 17 and 18. 3.80 76. NOS. 19 and 20. 3.90 16. NO. 21. 4.00	8
Hay and Straw Maives.	13-16 Nos. 15, 12 and 15	0
Lightning	19-16, No. 22 4-3C 94, Nos. 13, 14 and 25 4-3C 94, Nos. 15, 17 and 18 4-10C	L
Waiton Straw Knives. 17:00 Locks and 18 1000s. 19:00 Gaviord Cabinet. 18:00s.	No. 19 and 20. 4.20 No. 21 4.30 No. 22 4.30 No. 22 4.40	00
8 dos. 85.00 5.40 6.50 7.50 8.50 10.00 28.50 dis 50 %	5. No. 21 1.50 1.	1
No	16, NOS. 13, 14 and 15.	-
Bucterns. Buctero. Large list net; small list net Tuoular. No. 0, \$855; No. 1, \$10.15 \(\tilde{\psi} \) dos net Guards, scenis extra per don net. Lawa i lowers.—Fennsylvanis. Philadelphia new list Excelsior. Lawa and Garden Pumps. Holland Patent. Hattests. Hattests.	96, No. 21 4-70 96, No. 22 4-70 96, No. 23 4-50 96 No. 23 4-50 96 No. 23 4-50	E E
Lawn and Garden Pamps. Lawn and Garden Pamps. Mattocks. List \$5.00 dis 10 %	9-10, Nos. 16, 17 and 18. 4-70 9-16, Nos. 19 and 20. 4-80 9-16, No. 21. 4-90	20 20
nong and Short Cutter.	0-16 NO. 23	34 34
Stebbins Gatos Co's Measuring Faucets dia 25 % Stebbins Gatos	10	3
Pennsylvania Pattern dis 40 % Meiaasse siates. Enterorise Mrs Co's Measuring Faucets dis 25 teoblois Gates Lincoln's dis 50 kto 10	The prices under Hoop Iron do not apply to Cotton Ties. 1-10c per lb. extra will be charged for each gauge	11
Woodruff	11cs. f-10c per lb. extra will be charged for each gauge lighter than the lightest indivated. f-10c per lb. extra will be charged for cutting floops to specified lengths. Ed to 2 lb. cut to length	26 30
Stuffers	13 to 2 in., cut to length. 2 to it lbs, per set of 6 hoops3.cc 8 lbs, and less than 9 lbs, per set of 6 hoops3.cc	34
Ohio & Auburn dis 20 % 18 and 18 20 % 19 cm of 18 20 % 19	So specified tengens. Barrel Hoops. 14 to 1 lin. cut to length. 5 to 1 lib. per set of 6 hoops. 5 to 5 ths. and less than 5 lib. per set of 6 hoops. Less than 1 lib. per set of 6 hoops. Extract for Cutting to Length all Irecting Irvs. All Iron, including Tire. Lioc No. 9 and heavier. Plow Slabs. 5 to 1 lib. 5 to 1 lib. 5 to 1 lib. 5 to 2 lib. 6 to 3 lib. 6 to 2 li	11 11
Near Cutters. dis 70 k Non	No. 9 and heavier	A
Razor Strops. dis 65&10 f. Razor Strops. 40 f.	Common, Charcoal Juniata. No. 15 to 14	D
Imitation Emerson gross lots \$42.00	No. 22 to 244.30 5.80 7.30	E
	No. 28	8
Tibe \$6.50 10.25 13.75 15.60 16.75 19.50 and res		
	Nos. 25 and 20	222
Diston's Stanley. discosio Scotto Sco	134 by % by \$-16	1
Sharpened Boxed and	134 inch	
Patent Tooth die 40% Patent Tooth die 40% Champion Tooth die 40%	8 lbs. to the yard2.90 20 lbs. to the yard2 8c	ш
bevels and spades. Grant Ames & Sons, new list	16	
Clair think Cross Cut, new list. dis o s Shevels and Spades. Oliver Amos & Sons, new list. dis 1; S Orbitch, S Rowland Gis vos cost. Rowland Gis vos cost. Sad Frons. to to libs. # 3 34c Vis. potts Patent. dis vos cost. Washita Extra. # 3 36c neg	12 " "	
Washita Extra Who is also net Who is a second	1½ to 2 by ½ to ½ inch	
	Juniata Nail Rods 6.00 Norway 6.00 Guard Iron 54254256 and 5425456 6.00 Drag Bars 5425429.15 and 54254256 6.00	ш
Strews. Slipe 100 dis 33% S. Flat Head Iron, new list Dec. 27 dis 0 & 105 Fint Head Iron, new list Dec. 27 dis 50 & 105		
new list Dec. 27dls 50 & 108	Dropper Bars 7.5c Cylinder and Landside Iron 3.20 Plow Beam Iron 5,00	*

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36 to 2 ft 1-16 and 2 1-32 and 3-16 and 3-16 and	Best 6 Squa nches, 12/8 to 4 14/6 to 4 15/8 to	re. Finelus inclusiones	lat, O sive	tenne etago	ed Car	Round.		110 120 130 140 170 220 300
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Shovel Spader Scoops	s, list.							2076
GA			frs. Ire	m Roof		ING ne World	CO	,



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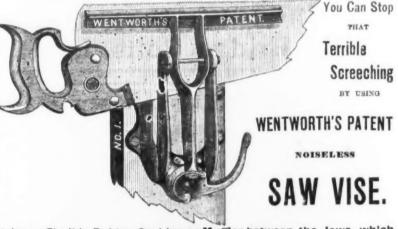


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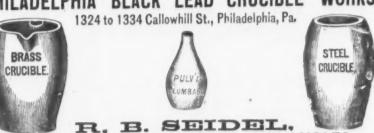
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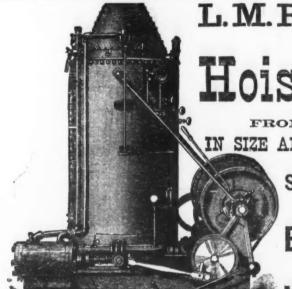


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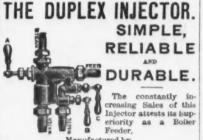
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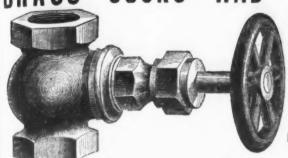
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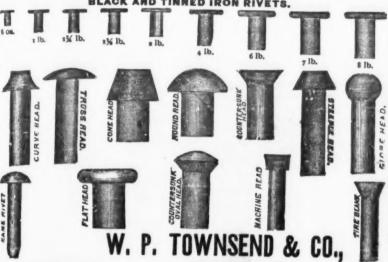


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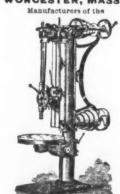
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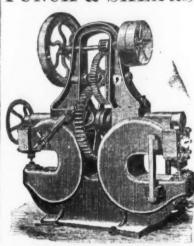






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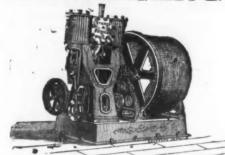
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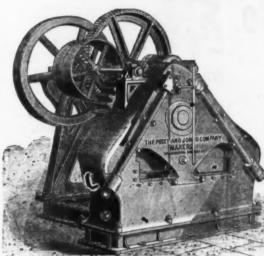
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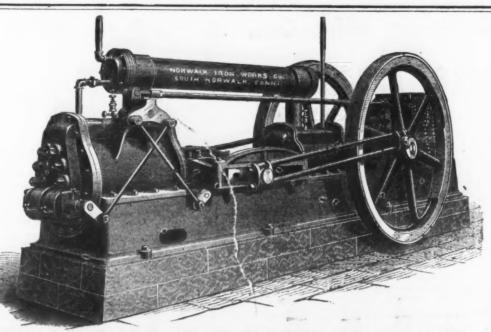
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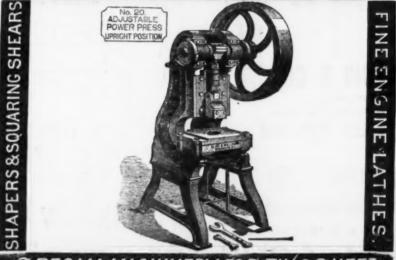
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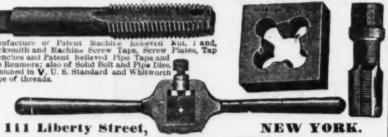
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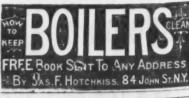


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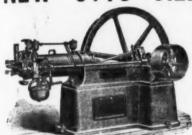
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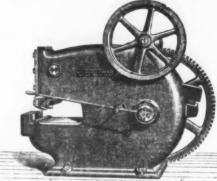
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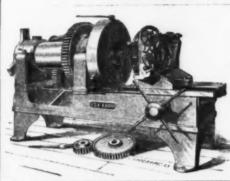
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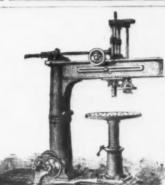
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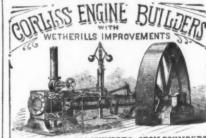


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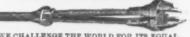
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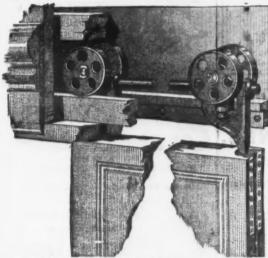
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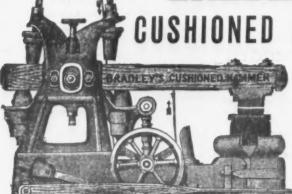
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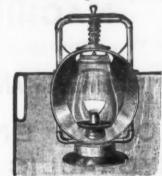
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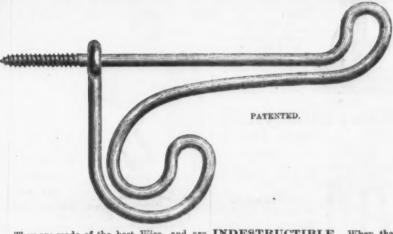
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